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University of California Medical School
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CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

Somewhere along its course this innocent appearing mountain stream became contaminated, causing an outbreak of typhoid fever in a small city, where the apparatus for treating the water supply was, through carelessness, not in operation. Before drinking, vacationists should boil water from streams whose purity may be questioned.

¶ ORIENTAL AND TROPICAL DISEASES
MUNICIPAL HEALTH ORGANIZATION
FOOD POISONING

¶ JULY, 1918

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CALIFORNIA STATE BOARD OF HEALTH

MONTHLY BULLETIN

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MONTHLY BULLETIN
CALIFORNIA STATE BOARD OF HEALTH

Devoted to the Prevention of Sickness and Death

¶ Entered as second-class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Sent free, on request, to any citizen of California.

WILFRED H. KELLOGG, M.D., Secretary and Executive Officer . Editor
GUY P. JONES, Morbidity Statistician . . . Associate Editor

Dangers in Home-Canned Food Products. In this number of the bulletin there appears an abstract of an article upon botulism by Ernest C. Dickson, of the faculty of the Stanford University School of Medicine. The U. S. Department of Agriculture has advocated the cold-pack method of the home-canning of food products and the California State Board of Health is not disposed to criticise this method but it desires to impress upon the people of California that all home-canned vegetables should be boiled before serving, and if home-canned fruit shows any evidence of fermentation, it should not be used. Because of the large number of cases of botulism and the correspondingly large number of fatal cases due to this disease, the Board believes that this warning is made necessary. The home-canning of food products is in no way discouraged, however. We must preserve all perishable foodstuffs as a factor in winning the war. By exerting the simple precaution of boiling these products before serving, however, we may be able to prevent much sickness and many deaths.

* * *

Protecting the Health of the Land Army. During this summer there will take place the greatest "Back to the land" movement that California has ever experienced. The Woman's Land Army is pledging hundreds of recruits whose duty it is to save the crops, the gathering of which is hindered by the unparalled shortage of labor. The patriotic women who are responding to this call of the land should investigate carefully sanitary conditions on the ranches where they may be stationed. Typhoid fever is primarily a rural disease. Most of the cases of this disease that are reported to the California State Board of Health occur upon ranches and in isolated rural communities. Water supplies should come from unquestioned sources. Privies upon all ranches should be made fly-proof and sewage disposal should be far removed from all sources of water supply. Cases of illness among women in the Land Army would hinder greatly the program for saving the crops. Local and district health officers should be called upon if there is any suspicion that conditions on ranches favor the spread of disease. The California State Board of Health will be glad to respond to any request for information that may come from any person employed upon the land.

* * *

Public Health Out of Slogan Stage. In the dark ages of public health administration groups of well-meaning and zealous individuals, untrained in public health work were accustomed to band themselves together, adopt a catchy slogan of misinformation and promptly prevent all of the needless deaths in their communities. With the steady advances in public health methods, it has been demonstrated that tuberculosis control consists of infinitely more than the adoption and spreading broadcast of a slogan such as "No spit, no tuberculosis." "Clean-up, paint-up" undoubtedly sells paint and may, possibly, have something to do with disease prevention; but, one hard-working man with a wagon can remove more rubbish than much loud shouting. "Swat the fly" is a small part of the program for typhoid fever prevention. Steady, hard work by trained workers accomplishes greater results than catchy phrases. Public health administration is out of the slogan stage: for results, it depends now upon definite action based upon standard procedures.

* * *

Benicia to Be a Spotless Town. The Benicia Herald and New Era issued a "Spotless town" edition early in June under the head lines "Clean up, Chase Dirt, Be a Good Soldier." The citizens of Benicia were urged to co-operate with the State Board of Health and with the Federal Shipping Board in improving sanitary conditions. Fred W. Atkinson, the publisher of the Herald, made this "spotless town" edition of his paper exceedingly attractive, and with the co-operation of the people of his city has been able to accomplish remarkable results in making Benicia conform to high standards of sanitation.

* * *

New Regulations for Venereal Disease Control. In the report of the Bureau of Social Hygiene published elsewhere in this bulletin, there will be found facsimiles of several new card forms issued by the bureau. Among these is the new form for reporting a case of gonorrhœa or syphilis. One-half of this card, which bears a serial number, is torn off and given to the patient who is known to the health officer only by the serial number. The portion of the card that is given to the patient supplies definite instructions. He is warned that if he changes physicians for any reason he must see that the physician last consulted notifies within ten days the physician previously having charge of the case. This requires a special form (Card B) for making such report to the former physician. If the patient fails to come for treatment at the time ordered by the physician, within the period in which the disease is infective, and he does not receive notice within ten days from another physician stating that the patient has placed himself under his professional care, the physician first consulted is required to report the name and address of the patient to the Bureau of Social Hygiene, using the Bureau's special form (Card C) for this purpose. The patient is then liable to quarantine or to such other procedure as the State Board of Health may determine. If the patient follows these instructions and continues treatment until he ceases to be a source of danger to the public his name is kept secret.

A Good Way to Prevent Typhoid. The use of typhoid prophylactic by the public at large can not be too strongly urged, especially at this season of the year when so many people are going into the country and mountains, where they drink water of unknown quality.

The State Board of Health through its Bureau of Communicable Diseases at Berkeley furnishes this typhoid vaccine free of charge to local health officers and physicians.

* * *

"Pure Food for Vigorous Life." Eternal vigilance is the price which the State Board of Health must pay for getting things done. Their work must go on notwithstanding the unpopularity of their calls when there is trouble ahead. The California Health Bulletin for May reports one lot of canned tomatoes that went into the junk pile at a loss of $15,000. A mammoth heap of tin cans with holes having been knocked in them to let out the contents is not of much consolation, when one considers the hours of labor that have gone into producing and canning 36,000 gallons of tomatoes. San Francisco, San Jose, San Diego and other towns are having to bear the stigma left as the result of the investigations of the Bureau of Foods and Drugs. The most deplorable phase of the situation is that the goods were prepared to fill Government orders. Deliberately to prepare impure food for our military forces is to stab in the back the men who are offering their lives for our liberty. Unintentional carelessness is a lesser crime, yet our forced domestic mobilization is revealing how many flaws there are in the essential quality of our National life. There is no greater waste of time than to prepare impure food or any greater waste of force than to eat such food. If the citizens of any nation could be brave enough to play fair out and out in all the personal relationships as well as in the relationships of organization, the experiment would be mighty interesting, to say the least. Such a nation would find itself on the fastest express train bound for the destination of SUPERIORITY. The possibility of the existence of such a state is not at all a Eutopian dream, nor the romance of a mythical millenium. It is all a matter of measuring up life with scientific law which we can never evade however we may be disposed to do so. The purpose of pure food laws is to keep pure blood corpuscles running through our veins, which has a closer bearing upon international diplomacy, even than we might at first suppose. A soldier will not be able to fight unless his body is built up on wholesome food, neither can men and women of affairs perform the serious responsibilities that rest upon their shoulders unless their mental acumen is sustained by a body in good condition. We require difficult tasks of Boards of Health, but all honor to them, when they do their duty.—*Mill Valley Record.*

* * *

A Promotion for Dr. Robert A. Peers. Dr. Robert A. Peers, member of the California State Board of Health, who left for France early in April, has been made assistant chief of the American Red Cross tuberculosis work in France. Since Dr. White of Pittsburg, chief of this division, is now on leave, Dr. Peers is in charge of Red Cross tuberculosis control work in France.

DANGERS TO CALIFORNIA FROM ORIENTAL AND TROPICAL PARASITIC DISEASES.

By WILLIAM W. CORT, Ph.D., Consulting Helminthologist, Division of Parasitology, Bureau of Communicable Diseases, California State Board of Health.

INTRODUCTION.

Diseases caused by animal parasites, with the exception of malaria, hookworm and a few of the common worm infections, do not usually come to the attention of the physician in the United States. In tropical and oriental countries, where the temperature is high and the standards of living low, animal parasites of man are prevalent to an astonishing degree and cause a considerable proportion of the disease. These diseases spread with shifting populations wherever the parasites can find suitable conditions for development. The rapid spread of hookworm in the southern United States and the invasion by sleeping sickness of new regions in Africa are notable examples of the rapid spread of two very important parasitic diseases which depend on entirely different factors for their introduction into man. The influx into France of soldiers from various parts of the world has brought into prominence a number of diseases formerly rare, and the mixing of populations due to the war will undoubtedly serve to increase the range of some of the parasites of man. The introduction of the protozoan dysenteries into England is already causing concern among British physicians. California, on account of a semitropical climate, a close relation to the Orient and the tropics and a continually shifting population, needs to be constantly on guard against the introduction and spread of diseases caused by animal parasites. Malaria has already spread widely in the state, following the range of the mosquito carrier; hookworm has gained a foothold in the mining regions and cases are on record of amœbic dysentery contracted in the state. Scattered case records show that other parasitic diseases are also present in California. We can, however, have little idea of their actual prevalence, since almost no fæcal or blood examinations are being made among those elements of the population most likely to be infected. The purpose of the present paper is to call the attention of the physicians of California to the fact that certain dangerous parasitic diseases are present in the state under conditions which make possible their establishment and spread.

The spread of any animal parasite is determined by the character of its life history and the method of its introduction into the human host. Only in the last few years has much been known of the life histories of many of the animal parasites of man, and there are still big gaps in the knowledge. In fact, the methods of infection of man by the three most important fluke diseases of the Orient, viz, bilharziosis, paragonimiasis and clonorchiasis have so recently been discovered that the researches are not yet included in the standard textbooks of parasitology and tropical medicine. The following outline, which includes most of the important animal parasites of man, will give an idea of the variety of their life histories and will form the basis for the analysis of the factors influencing their distribution.

TYPES OF LIFE HISTORY OF THE ANIMAL PARASITES OF MAN.

I. Adult stages in man.

A. No intermediate host.

1. No stage outside of man; transmitted by direct contact.

Treponema pallidum, parasite of syphilis.

2. Free stages in eggs or spores; man infected with food or water.

Entamœba histolytica, parasite of amœbic dysentery.

Trichomonas intestinalis and Giardia intestinalis, parasites of flagellate dysentery.

Balantidium coli, parasite of ciliate dysentery.

Trichuris trichiura, the whipworm.

Ascaris lumbricoides, the roundworm.

Oxyuris vermicularis, the pinworm.

3. Larval states free-living; man infected by active penetration through the skin; infection also through the mouth.

Anchylostoma duodenale and Necator americanus, parasites of hookworm disease.

4. Adult free-living generation alternates with a parasitic generation; man infected by active penetration of larvæ through the skin; infection also through mouth.

Strongyloides stercoralis; probably related to diarrhœal complaints.

B. One or more intermediate hosts.

1. One intermediate host.

a. Intermediate host a vertebrate; a man infected by eating flesh of intermediate host containing larvæ.

Tænia solium and Tænia saginata, the pork and beef tapeworms of man.

b. Intermediate host an arthropod; man infected by ingesting intermediate host containing larvæ with food or water.

Hymenolepis diminuta and Hymenolepis nana*; dwarf tapeworms of man; intermediate hosts, insects.

Dracunculus medinensis, guinea worm; intermediate host a small crustacean, Cyclops.

c. Intermediate host a mollusc; man infected by penetration of free swimming larval stage (cercaria) through the skin.

Schistosoma hæmatobium, Schistosoma mansoni and Schistosoma japonicum, human blood flukes; cause bilharziosis.

d. Intermediate host a biting insect; man infected by larvæ transmitted by bite of insect.

Plasmodium malariæ, P. vivax and P. falciparum, parasites of malaria.

Trypanosoma gambiense; cause of sleeping sickness.

Filaria bancrofti, parasite of filariasis; associated with elephantiasis.

Filaria loa, eye worm of man; causes Calabar swellings.

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*Intermediate host and method of infection not surely determined.

2. Two intermediate hosts; man infected by eating tissues of secondary intermediate host, containing larval stages.

   Dibothriocephalus latus, broad tapeworm; causes bothriocephalid anemia; intermediate host the crustacean Cyclops; secondary intermediate host fish.

   Clonorchis sinensis, liver fluke, cause of clonorchiasis or hepatic distomiasis; intermediate host snail*; secondary intermediate host fish.

   Paragonimus ringeri, lung fluke, causes paragonimiasis or pulmonary distomiasis; intermediate host a snail*; secondary intermediate host fresh water crabs. Man may be infected either by eating flesh of secondary intermediate host or from cysts which have broken away from this host.

II. Adult and larval stages, both in man.

Trichinella spiralis, parasite of trichinosis; pig, rat, etc., can also serve as primary hosts; man infected from flesh of pig.

III. Larval stages in man.

Echinococcus, larval stage of Tænia echinococcus of the dog; causes hydatid disease; man infected by ingesting eggs from fæces of dog.

FACTORS INFLUENCING THE SPREAD OF PARASITES.

As shown by the above table the life cycles of human parasites are varied and their method of entrance into man diverse. Consequently the conditions influencing their spread are different in different species and are often extremely complex. These conditions depend on the general environment of the host and on the special environment of the parasite, which is the host itself. The most important influences of the general environment on the parasite are produced by conditions of temperature and moisture. These factors have the greatest influence on parasites, like the hookworm and human flukes, which have free living larval stages and are negligible in their influence on such a form as Trichinella spiralis, which passes its whole life cycle in warm-blooded hosts. In Ascaris, Trichuris and similar species the only free stages are the eggs, which resist changes in temperature and can endure considerable drying. The importance of temperature and moisture as limiting factors is well shown in the distribution of the hookworm, which, except in warm, humid deep mines, is found only in regions of considerable humidity in a zone falling approximately between parallel 36° north latitude and parallel 30° south latitude. These limitations are due to the fact that the free-living larval stages of the hookworm require for development a moist medium and a temperature between 60° and 90° F.

Infection by human parasites which require intermediate hosts for their development are limited by the distribution of these hosts.

***The snail intermediate hosts of these forms are not yet surely determined.**

Malaria is not found outside the range of the Anopheles mosquito and the human flukes are limited to regions which contain suitable molluscan intermediate hosts. Often such a parasite entering new areas can become adapted to a new species of intermediate host. Fasciola hepatica, the sheep liver fluke, has spread widely over the world and has utilized as its intermediate hosts various species of the snail genus Lymnæa. The cercaria of Schistosoma mansoni develops in different species of snails in Africa and South America. For this reason it is unsafe to conclude that a human parasite can not enter a new country, because the particular species which serves as its intermediate host elsewhere, is not present.

The rapidity with which a human parasite can spread is also influenced by the possibility of other animals besides man serving as its primary host. The human trypansomes develop in the blood of a number of large mammals in Africa. These animals serve as reservoirs of infection and increase greatly the danger from this disease. The prevalence of the Japanese blood fluke, Schistosoma japonicum, is greatly increased by the fact that it can develop in rats, dogs, cats and cattle as well as man.

Even more important than general environmental conditions or host relations in the spread of the parasites of man are the habits of the human host. The eggs or spores of most human parasites escape with the fæces. Such parasites depend for their spread on soil or water pollution. In civilized communities where systems of sewage disposal are highly developed, parasitism in man is rare, but under crowded or rural conditions, as in many oriental countries, or the poorer regions of the southern United States, sanitary arrangements are primitive and parasitism common. The widespread utilization of human fæces as fertilizer in some countries also contributes to the spread of parasitic infections. Often, as in hookworm campaigns, education for the improvement of the methods of fæcal disposal is a most potent weapon in eradicating the disease. Food habits greatly influence human parasitism. Ascaris, Trichuris and Oxyuris are more prevalent in children than adults, probably chiefly on account of their carelessness in eating. Uncooked vegetables, which are not thoroughly cleaned, and contaminated surface water contribute to the spread of intestinal protozoa and round worms. The habit of eating uncooked pork or rare beef serves to spread trichinosis and the tapeworm infections. The spread of paragonimiasis chiefly depends on the unusual habit in parts of Japan, China and Korea of eating raw certain small fresh water crabs which carry the encysted stages of the lung fluke. The most effective method of attack against any parasite which depends for its introduction into man on a particular food habit is an attempt to change this habit by legislation, publicity or other means. The publicity given to trichinosis about twenty years ago has done much to lessen the prevalence of this disease in the United States, by making people afraid to eat partially cooked or pickled pork.

The prevalence of parasites which infect man by penetration through the skin depends on habits which bring men in contact with infected soil or water. These diseases are therefore more prevalent in rural communities than in cities. They are also often occupational, as hookworm among miners and schistosomiasis among laborers in the rice fields of Japan.

Diseases which are carried by biting-insects are spread by habits which bring men into contact with the insect carriers. The spread of such diseases also depend on habits of man which give the intermediate host a good environment for development. For example, it has been found in the mosquito survey that in irrigated regions of California there seems to be a correlation between the water rates and the prevalence of malaria. If water is cheap it is apt to be wasted and to stand in pools and ditches. This gives ideal conditions for the development of the malarial mosquito. Where water is more expensive, it is more carefully conserved and fewer places will be produced where mosquitos can develop. The intermediate host is the most vulnerable point for attack against insect-borne disease, as has been shown many times in campaigns for the eradication of malaria and yellow fever.

HUMAN PARASITES IN CALIFORNIA.

Regions of the world where parasitism abounds have contributed to the cosmopolitan population of California. Hookworm in the gold mines of the state has been, in all probability, introduced by miners from Austria, Spain and Italy. Mexicans in large numbers have come in and are living in many places under conditions comparable to those in Mexico. Immigration from the Orient has been very great, offering a source of danger from a number of human parasites. The hookworm districts of the southern United States have also contributed to the population of the state. The United States Public Health Service has long recognized the danger from Oriental parasitic diseases, and requires steerage and second class Orientals seeking to enter California to undergo a microscopic examination of fæces at the Immigration Station Hospital at Angel Island. Before 1911, when this regulation was put into effect, there was absolutely no check on the entrance of parasitic diseases from the Orient. The latest regulations of the Surgeon General, United States Public Health Service, governing the medical inspection of immigrants, issued August, 1917, placed clonorchiasis, schistosomiasis and paragonimiasis on the list of excludable diseases. These fluke diseases are considered to be incurable and are widespread in a number of regions from which immigrants come to California. Before August, 1917, Orientals with these diseases entered the state in considerable numbers. Since these flukes live for a number of years, there must be at the present time in the state a number of people infected with them. Whether these parasites have found conditions making possible their spread is an entirely uninvestigated question.

Statistics from the Immigration Hospital at Angel Island, furnished through the courtesy of Dr. W. C. Billings, show that 70 and 80 per cent of untreated arriving Japanese and Chinese are infected with Ascaris lumbricoides and Trichuris trichiura and that about 60 per cent of these also have hookworm. The Hindu immigrants are also heavily infected, but the whipworms and roundworms do not accompany the hookworms to so great an extent. The rarer affections, but still met with considerable frequency, are in order of prevalence (1) Clonorchis sinensis, (2) Schistosoma japonicum, and (3) Paragonimus ringeri.

The following quotation from a letter from Dr. W. C. Billings is of interest in this connection:

"Unquestionably Oriental immigrants with different intestinal worms have been admitted to California up to within a comparatively recent period. If my memory serves me correctly Oriental immigration to the Pacific coast started in the early 40's, and, as every incoming Oriental may be fairly regarded as possibly infected with some form of intestinal parasite and as a definite examination to determine the presence of these parasites is of comparatively recent origin, we may assume that the opportunity to introduce various intestinal parasitic conditions into California has been quite pronounced."

There are scattered case records from California of schistosomiasis, paragonimiasis, amœbic dysentery, Strongyloides stercoralis and filariasis. Hookworm disease has been also reported outside of the mines. An attempt is being made by the Division of Parasitology of the State Board of Health to gather together such records in order to find out whether there are cases of these diseases of undoubted origin in the state. Although the work of compiling these records has only recently been undertaken, some very interesting cases have already been reported. The physicians of the state are asked to send to the Division of Parasitology of the State Board of Health, Berkeley, any records of such diseases that come to their attention. We can be certain, however, that case records will give little indication of the prevalence of diseases caused by animal parasites in California. The great majority of the poorer classes of Oriental immigrants have little medical attention. The Chinese almost exclusively consult their own physicians. Most of these diseases can be diagnosed only by microscopical examinations of blood or fæces. Such examinations require special apparatus, a special technic and special training. The majority of practicing physicians do not make such examinations. Therefore, except under unusual conditions, these parasitic diseases go undetected.

It seems certain, from the data presented above, that there are present in California numbers of unrecognized cases of oriental and tropical parasitic diseases. A large part of California has a semitropical climate and falls directly within the hookworm belt. Dry conditions protect regions of the state from the spread of those parasites, dependent on water for the carrying through of their life cycles. The sparseness of the population over most of the state, and the sanitary conditions in the cities are also a protection. On the other hand, the increase of irrigation in the agriculture of the state is bringing together large numbers of Oriental and Mexican laborers, under conditions ideal for the spread of animal parasites. In certain regions the laborers live crowded together under unsanitary conditions and there is an enormous amount of soil pollution. Human fæces is even used for fertilizer in some places. In these regions the conditions of temperature and moisture, and the habits of life of the people, are favorable for the spread of such parasites as hookworm, Strongyloides stercoralis, the intestinal protozoa, the common intestinal roundworms Ascaris, Trichuris and Oxyuris and the fluke diseases, if they can find suitable intermediate hosts. These regions are almost entirely uninvestigated for parasitic diseases and may prove to contain dangerous foci of infection. A further discussion of some of the important parasitic diseases will give a more definite idea of the chances of their introduction into California.

THE COMMON ROUNDWORMS.

Parasites which need no intermediate host are very widely distributed in the world and easily introduced into man. Ascaris, Trichuris and Oxyuris, which are spread by eggs protected to a considerable extent from temperature changes and drying, are found everywhere in the tropical and temperate zones. Records show that these parasites sometimes have a severe and in a few cases fatal effect on the host. They may have a certain significance in the production of typhoid fever, appendicitis, and other intestinal bacterial infections. Adult ascarids often cause trouble by wandering into various organs, and the most recent work on the life history of this species indicates that the larval stages after introduction into man wander into the lungs, liver and other organs before settling in the intestine. In oriental and tropical countries the percentage of infection with these parasites is very large, and they have undoubtedly been brought into the state from a number of sources. Conditions in the foreign labor camps are ideal for their spread. It is very important therefore that investigations be made to determine whether they are spreading widely in the foreign populations, and thus endangering all those who live near such centers.

AMŒBIC DYSENTERY.

Entamœba histolytica, the organism of amœbic dysentery, also depends for its spread on soil pollution. It is somewhat more influenced by temperature than the roundworms, but is by no means limited to tropical or semitropical regions. As in typhoid fever, many people who show no symptoms of the diseases may be carriers. Amœbic dysentery is very prevalent in the Orient and tropical countries, and is perhaps the worst disease of the Philippine Islands. A number of Americans have brought back this disease, and many more are undoubtedly carriers. If amœbic dysentery is prevalent among laborers in truck gardens it might easily spread to the people who handle and consume the vegetables. It would also be spread through contaminated surface water. Reported cases, some of which are in residents of California, show that this disease is present and spreading in the state. One hospital in San Francisco reports five cases of amœbic dysentery in 1917, two of which were undoubtedly contracted in the Bay region. Since the accurate diagnosis of this disease, except in serious cases, depends on finding the amœbae or cysts in the fæces, it is probably more often unrecognized than not. Certainly all possible steps should be taken to investigate the presence of this disease and to control it before it becomes a menace to the whole state. The flagellate and ciliate dysenteries may also be present in the state to a much greater extent than reported records show. Their method of spread is the same as that of amœbic dysentery.

HOOKWORM.

Hookworm already offers such a serious problem in the mines of the state that most of the time of the Division of Parasitology is being given to a campaign for its eradication. Scattered cases have also been reported outside of the mines and the conditions all through the irrigated regions of the state are favorable for its introduction and spread. In fact in parts of the ''Delta'' region and certain other irrigated areas of the state, the character of the population and the relation to the soil is such that it would be very remarkable if centers of infections of hookworm disease have not already been established. Here, again, the absence of definite data is due to the fact that practically no fæcal examinations have ever been made among the people likely to be infected. When we consider that hookworm might spread from the mining regions, or come in with Orientals, Mexicans or from the southern United States, it is evident that it is a real menace against which California must be constantly on guard.

FLUKE DISEASES.

That many Orientals in California are infected with human flukes is certain, from the fact that a number of those seeking admittance have these infections, that the flukes can live for several years and that they have only been excluded by the health authorities since August, 1917. There have been reported cases of both lung flukes and blood flukes in Orientals resident in California. Since it is certain that these parasites are present in the state, perhaps in a considerable number of cases, it is important to know whether conditions are such that they might become established and spread. The introduction of the fluke diseases into California depends, in the first place, on their finding suitable molluscan intermediate hosts. The exact mollusc in which Clonorchis sinensis, the human liver fluke, develops is not known, so that it is impossible to determine whether closely related species are present in the state. This fluke also must encyst in fish before it can complete its cycle, and the infection can only reach man from the eating of raw or partially cooked fish. Its cycle then depends on the finding of two suitable hosts and a peculiar food habit of man. The life cycle of Paragonimus ringeri, the human lung fluke, is similar to that of Clonorchis sinensis. In this form also the molluscan intermediate host is not surely known. The secondary intermediate host is a small fresh water crab. Man probably becomes infected in most instances from eating these crabs raw or pickled. The recent discovery that the cysts of the lung fluke can become detached from the secondary intermediate host and can infect man through drinking water greatly increases the chances of the spread of this disease. Both Clonorchis and Paragonimus can develop to the adult stage in dogs and cats. This of course greatly increases the danger of their introduction into a new region. There is also present in the United States a species of Paragonimus, P. kellicotti, in the lungs of hogs and cats. This parasite has been reported a number of times, but the extent of its distribution is not known. No cases have yet been reported of Paragonimus kellicotti in man. It is entirely possible that it might develop in man if it gained entrance. At any rate the fact that this species of Paragonimus can find suitable conditions for carrying through its life cycle in the United States, suggests the possibility of the introduction of the human lung fluke. Although the danger of introduction into California of the liver fluke and the lung fluke is reduced by their complicated life cycles, the fact remains that they are both widespread in the Orient and have found conditions favorable for their development over wide areas.

With schistosomiasis the case is different. If suitable intermediate hosts could be found the blood flukes might easily become introduced and spread in California. Schistosoma japonicum especially has been brought in from China, Japan and Korea. Schistosoma hæmatobium from Africa and Schistosoma mansoni from Central and South America and the West Indies have more rarely been introduced. Flukes of this group are not specific in the choice of intermediate hosts, and no secondary intermediate hosts are necessary for the carrying through of their life cycle since the cercaria, which is the infective stage, actively leaves the molluscan intermediate host and penetrates into man. The fact that the cercaria can also penetrate and develop to maturity in rats, cats, dogs and cattle very greatly increases the chances of introduction and spread. If the schistosomes can find suitable intermediate hosts in irrigated areas where Orientals are engaged in agriculture, they might easily spread both to lower animals and man. It is suggestive in this connection that a species of schistosome cercaria closely related to the human forms develops in snails in California. Experience has shown that when this disease once becomes established it is almost impossible to eradicate. Since schistosomiasis is a very serious disease and at present entirely incurable, it is of great importance that its prevalence in agricultural districts of California be investigated and that experiments be carried on to determine whether any of the snails in such regions can serve as its intermediate host.

MOSQUITO-BORNE DISEASES.

Of the animal parasites transmitted by biting-insects, malaria is already widespread in the state. An active effort is being made by the State Board of Health to combat this disease. The March number of the Monthly Bulletin of the State Board of Health contains an editorial pointing out that increased areas devoted to rice culture tend to increase the breeding places of malarial mosquitoes. Much of the malaria is entirely unnecessary and local campaigns against mosquito breeding grounds will do much to decrease its prevalence. It must be recognized, however, that malaria has become one of the most serious diseases within the borders of the state. Filariasis, which is also carried by mosquitoes, has been reported a number of times in the United States, and some of the cases have been in natives of this country. Suitable mosquito hosts of this disease are present in California. It is prevalent in a number of countries from which immigrants come, and undoubtedly is present in the state. We have no evidence that it is spreading. But here, again, there is small record of blood examinations which are necessary for its diagnosis. There is no reason why this disease can not spread in California, and it may be much more prevalent than is supposed.

METHODS OF FÆCAL EXAMINATION.

It is evident from the above discussion that diseases produced by animal parasites have a special significance to California. There is every reason to believe that there are present in the state a large number of unsuspected cases and perhaps foci of infection of these diseases. With the exception of malaria and filariasis these diseases must all be diagnosed by fæcal examination. A commonly used method of fæcal examination is the smear method. A small portion of fæces is transferred to a slide with a toothpick or some other small object, is spread out in a drop of water, covered with a cover glass and examined under the microscope. This method is commonly used in the diagnosis of amœbic dysentery. The cysts and amœbæ are so small that careful examinations with a high-power lens are necessary to detect them. This form must be carefully distinguished in examinations from Entamœba coli, which is apparently nonpathogenic and present in a considerable proportion of any population. The smear method is often used for the diagnosis of parasitic worms. It must, however, be recognized as only a rough method of diagnosis, since it will only show the eggs in heavy infections. If the smear method is employed at least three slides should be examined for the diagnosis of each case. The centrifuge method of fæcal examination gives a more careful diagnosis and is satisfactory for most routine work. A piece of fæces about the size of a walnut is mixed thoroughly with water. The mixture should be strained through cheesecloth and centrifuged repeatedly until the oils and lighter particles are gotten rid of. A small drop of the residue can be taken up in a pipette spread out on a slide and examined under a cover-glass with the medium power of the microscope. At least three slides should be gone over before a negative diagnosis can be safely given. A mechanical stage is of great help in examining such a preparation, since its use makes it possible to cover completely all parts of the cover-glass. Quite an extensive literature has grown up on the subject of fæcal examinations, and much of it is easily accessible to the physician who wishes to look further into this subject.

That diseases caused by animal parasites offer peculiar problems to California has been recognized by the State Board of Health in the organization of a Division of Parasitology of the Bureau of Communicable Diseases for the investigation of such diseases. Most of the time of this division at present is taken up with a campaign for the eradication of hookworm in the mines, but other problems are gradually being undertaken. The work of this division will be greatly facilitated if physicians all over the state will pay more attention to fæcal examinations, especially in dealing with Orientals, and will report cases of parasitic diseases whenever found. The Division of Parasitology is ready to make fæcal examinations for any physician in the state, and standard containers and mailing cases for samples will be sent on request. All correspondence should be addressed to the Division of Parasitology of the State Board of Health, East Hall, Berkeley, California.

MUNICIPAL PUBLIC HEALTH ORGANIZATION.*

By ALLEN F. GILLIHAN, M.D., State District Health Officer, Santa Rosa.

In order to understand the health and sanitary problem of a city of 35,000, it is first desirable to outline the process of an ideal health department, thus forming a basis with which to evaluate the actual work done in the average city of this size and on which to build an efficient department. These may be briefly registered as follows:

HEALTH DEPARTMENT FUNCTIONS.

I—CONTROL OF COMMUNICABLE DISEASES.

1. Obtaining knowledge of cases—
    a. Reporting.
    b. Field investigation.
    c. Laboratory diagnoses.
2. Control of patients and contacts.
3. Epidemiological investigations.
4. Release of patients and contacts.
5. Morbidity statistics.

II—CONSERVATION OF CHILD LIFE.

1. Supervision of child's early life.
    a. Prenatal supervision—
        Guidance of prospective mothers.
        Supervision of midwives.
        Supervision of maternity homes.
    b. Care of the newborn—
        Postnatal care.
        Birth registration.
        Control of ophthalmia.
    c. Infant care—
        Supervision of baby and child farms.
        Supervision of orphan asylums.
        Baby week campaigns.
        Little mothers' clubs.
2. Supervision of children of school age with regard to mental and physical development.
3. Supervision of child labor.

III—FOOD SUPERVISION.

1. Milk	Registration of producers and dealers, supervision of plants and products by field inspectors and laboratory examinations.
2. Foodstuffs	
3. Meats	

IV—SANITARY SUPERVISION.

Water supplies	Field work and laboratory investigations.
Sewage disposal	

Housing conditions.
Industrial conditions.
Wastes and refuse disposal.
Elimination of insects and animals transmitting disease.

V—VITAL STATISTICS.

Birth registration.
Death registration.
Burial registration.

We find in the average city that we have a part-time health officer who is usually engaged in active practice. He can not enforce health measures without creating antagonism amongst his professional brethren, and amongst his own patients to the detriment of his practice; therefore we find him doing as little as possible.

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*Read at the California State Conference of Social Agencies held at Santa Barbara, April 15-19, 1918.

In the control of communicable diseases we find lax reporting, and more lax supervision. The quarantinable diseases are placarded, but the complaints of the public are depended upon to secure observance of the quarantine regulations. No epidemiological investigation is undertaken, and the unnecessary expense of fumigation is indulged in. The quarantining and fumigating are very frequently done by the plumbing inspector, or sanitary inspector, as a side issue to his regular duties.

The health officer usually makes no examination for release from quarantine or isolation. He invariably neglects the minor diseases, makes no tabulations other than those required by the state board, and is unable to work out a morbidity rate; in fact, I doubt if he knows what such a thing is.

In the conservation of child life, with possibly the exception of medical inspection in schools, practically nothing is being done in the average city. We frequently find baby week campaigns have been held; these are usually fostered by mothers' clubs of the city, but this very good work is not followed up by the health deportment. No supervision of midwives, maternity homes, or homes for children is undertaken, except possibly the registration of midwives. (Under the present laws of California anybody can be a midwife.)

Birth registration is not actively enforced, so no determination can be made of infant mortality rates. Nothing is done about child labor.

Under food supervision we very frequently find more activity shown than in any other department. A milk inspector, and frequently a food inspector, will be found, and occasionally stock is inspected at the time of killing.

Sanitary supervision is usually reduced to the abatement of nuisances, and is a very secondary part of the work of the plumbing inspector.

A laboratory is usually maintained for the examination of swabs for diphtheria and sputum for tuberculosis for diagnoses. Bacterial and chemical examination of milk is also done, but we find as little as possible is done where the pay is part time and there is no incentive to increase the amount of work.

Public Health Bookkeeping.

Under office detail we usually find a clerk whose duties are about equally divided between receiving reports of cases of communicable diseases from physicians, ordering quarantines and fumigations, receiving and registering birth certificates, death certificates, issuing burial permits, answering 'phone kicks, issuing permits for milk, meat, and other vendors, and making reports to the State Board. No bookkeeping of public health is done, therefore no information is available which would show the health situation of the city. An annual report is usually not prepared. "Bookkeeping of Public Health" is a very good term borrowed from Irving Fisher. A city which does not do such bookkeeping is on a par with the business which is run for cash only, and which does not maintain an efficiency record, so no comparison with previous years in possible. They can not tell whether an individual department is going ahead or falling behind, or whether the business is succeeding or failing; such is the situation in the average city of today.

Plumbing inspection is usually imposed upon the health department; this should be turned over to the building department.

Nuisance abatement should be under the control of the police department, and garbage disposal should be taken care of by the department of public works.

Past Assistant Surgeon Paul Preble, of the United States Public Health Service, last year completed a survey of 330 cities in the United States. He found that the average city of from 25,000 to 50,000 inhabitants spent an average of 24.6 cents per capita per year on public health and that the health officer received an average of $100 per month.

"Public Health is Purchasable."

Public health is as purchasable as any other commodity. For example, in the construction of the Panama Canal, it was necessary to pay a very high price for public health—$3.65 per capita per annum. Consensus of opinion of those competent to discuss the matter gives 50 cents per capita per annum as the amount necessary to maintain an efficient health control of a city from 20,000 to 35,000. That would mean an expenditure of $17,500 per annum for health protection. This, of course, bars unforeseen emergencies, and does not include such activities as garbage collection, plumbing inspection, maintenance of city pound, etc., but it relates only to expenditures on public health activities which have been outlined.

Where a city has been spending from $8,000 to $9,000 per annum and securing a department that is probably 50 to 70 per cent efficient, and they are asked to spend $17,000, they would either ignore the request, or raise an awful storm of protest. How can we demonstrate such expenditure to be warranted? For example, examine the death records of your city for deaths from typhoid fever; remember the death rate of typhoid is under 10 per cent; that is, for every ten reported deaths from this disease there must have been over 100 cases; more than likely less than one-half of these were ever reported. Ascertain the expenses incurred for nurse, medicine, hospital, and funeral expenses for these cases that have died. Ascertain or determine the expenses incurred for the cases that have recovered, and as I have said before, we have nine times as many recoveries as we have deaths. Determine the financial loss in wages during illness and long convalescence of those that have recovered, and I am sure that if there have been only two or three deaths from typhoid in your community, you will find that enough money has been lost to pay for your health department several times over.

Seriousness of Whooping Cough.

Or again, consider the so-called minor diseases, say whooping cough. Possibly no actual money was spent or time lost while baby had whooping cough, still I know of a family where many hundreds of dollars were spent on hospital, physicians, nurses and medicines during the eight or ten years following an attack of whooping cough in a small child, which was contracted in a small town where no control was exercised over this disease; this case is not unique. In figuring the expense from whooping cough, the medical expense and funeral bills in deaths from whooping cough should be included. Whooping cough in children under two kills more than all other communicable diseases put together.

Again, if some article be purchased in a foreign land, a large freight bill paid, and after the article has been received, it is unfortunately broken while being adapted to the purpose for which it was purchased—the purchase price, the freight bill, to say nothing of the time and disappointment, would all be considered an irrevocable loss. The same is true in all deaths from communicable disease in childhood. For all money spent during the life of each fatal case, all money spent for the mother's care during her pregnancy and at the time of her child's birth, should be included, because it represents something just as irrevocably lost as the article purchased in the foreign land. Many other examples could be mentioned, the items of which could be easily enumerated, but considerable work would be required to determine the actual money expended.

If your citizen is willing, and does actually spend $1.50 per capita per annum for fire protection, and $1.00 for police protection for mere property, surely he should be willing to spend 50 cents per capita for life and health protection.

Effect of War Sanitation.

Today many, many thousands of our young men are "over there" and in army cantonments. They are receiving instruction not only in the arts of war, but also the arts of peace. Sanitation plays a greater part in the present war than ever before in the history of the world, and the sanitation of camps today is the most efficient the world has ever known. The greater number of these men will in time return home, and when they do so, they will demand that typhoid be eliminated, that better sanitary conveniences be supplied; in short, they will demand that the sanitary efficiency of the army camp of today be maintained in their civilian homes of tomorrow. Speed the day they return!

How shall we organize our health departments to do all of these things which we have outlined, and at the same time keep within the estimated 50 cents? First, by employing a health officer trained and experienced in public health, and one who devotes his entire time to the duties of his office; $2,400 per year should secure such a person for a city the size we have in mind. He should be supported by a corps of experienced or trained public health nurses. A city of 35,000 gives a population of about 7,000 children of school age. In the organization of Health District No. 1 in New York City, three nurses were assigned to an estimated school population of 7,000. Besides school inspection and visits, these nurses do a great deal of district nursing work, taking up baby welfare work and prenatal guidance, control of communicable diseases, and sanitary supervision; therefore I would suggest that a minimum number of three nurses be employed in our suggested department at a salary not less than $100 per month. To have control of meat and milk inspection, a veterinarian should be employed on full time at a salary not less than $1,200 per year. A housing inspector, trained in housing, sanitation and social problems, at the same salary. An office force of secretary and stenographer at a minimum salary of $75 and $64 per month, respectively.

Compensation for Skilled Workers.

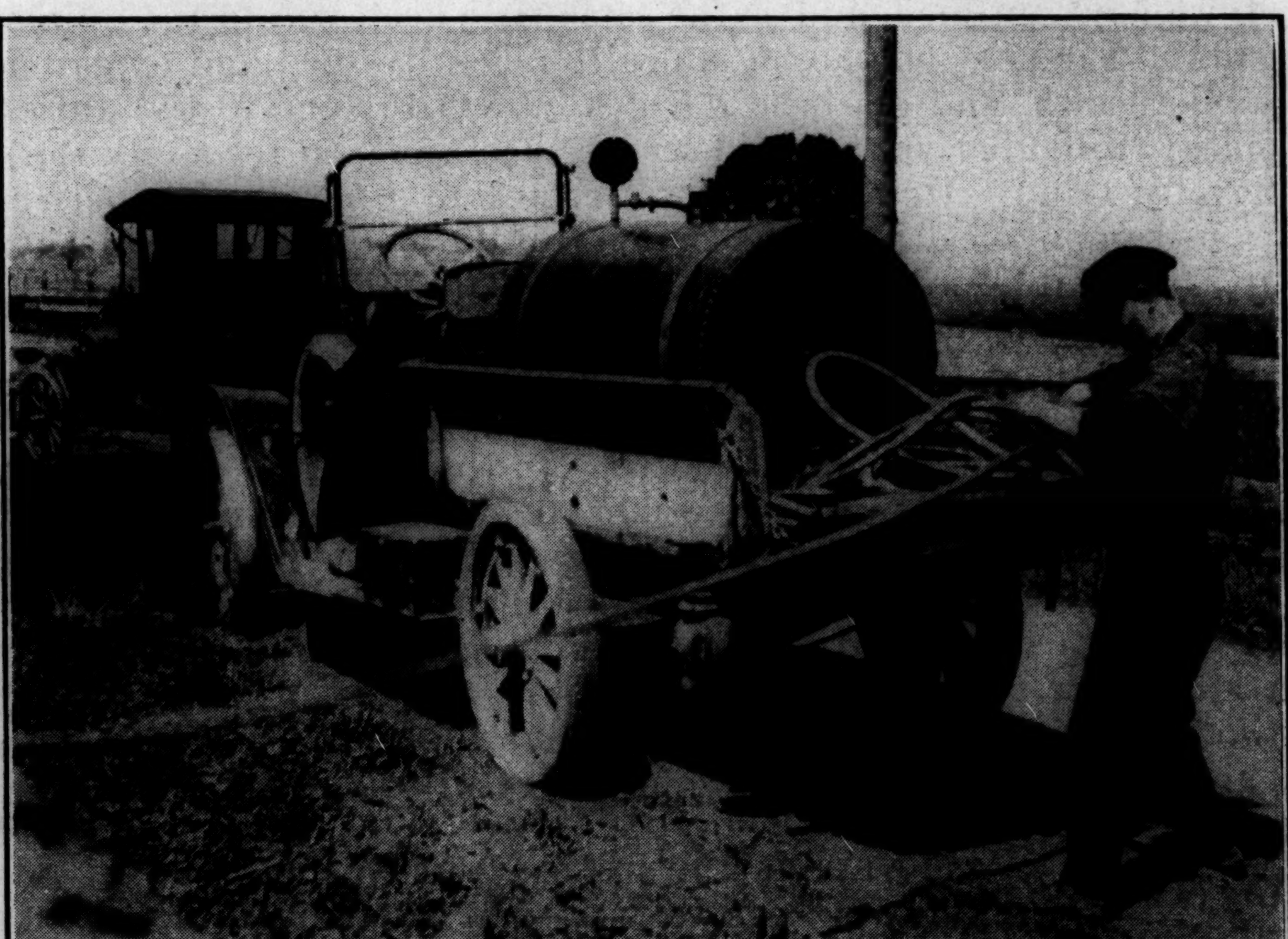
Laboratory. It is difficult to obtain a person trained in chemistry and bacteriology of public health without offering adequate pay; $150 per month would be a minimum rate. There would not be enough work in a city of this size to keep such a person busy all the time, so he coul devote part of his time to foodstuffs and to food establishments; for th laboratory he would receive $100 per month, and for the food inspectio $50. An untrained laboratory assistant at $50 per month would b found necessary to make media, wash glassware and other menial work.

Field workers should be supplied with automobiles of the Ford type; this would increase their efficiency fully 50 per cent. With the upkee of automobiles, laboratory supplies, maintenance items, such as offic supplies, printing and other sundry items, the health officer would b compelled to figure very closely in order to come within the suggested appropriation.

With such an organization it would be possible to reduce communicable disease to the minimum; to secure the reporting of all births; to maintain close supervision of child life from before birth to the end of the school period; to build up a first-class milk inspection service; to supervise the production of meat and other foodstuffs; to have a laboratory that would be of inestimable value to the physicians of the community; to carry on a continuous campaign of education; and finally, to have a system of public health bookkeeping, from which at all times could be determined the health situation of the community, as well as the efficiency of the public health work in all departments.

A POWER SPRAYER FOR MOSQUITO ERADICATION.

The superintendent of the Pulgas Mosquito Abatement District, T. L. Murray, has devised a unique piece of apparatus for convenience in oiling mosquito breeding pools in his district. This apparatus consists



A unique piece of apparatus, useful in mosquito control work, for spraying oil under compressed air upon the surfaces of breeding pools.

of an air compressor mounted upon a motor truck operated by the engine of same, enabling oil to be sprayed under compressed air. A long hose line permits a wide radius of operation and the workman is not required to carry a heavy knapsack of oil upon his back. This enables a much larger amount of work to be accomplished with a minimum of labor.

The Pulgas Mosquito Abatement District is in San Mateo County and comprises Redwood City and the unincorporated territory of Menlo Park, Belmont, San Carlos and Woodside. The district was organized June 19, 1916. The Board of Directors is comprised of A. G. C. Hahn, W. J. Murray and L. A. Barrett. The sum of $9500.00 was raised by special tax levy for operating purposes. Superintendent Murray has accomplished great results in mosquito eradication in the vicinity of Camp Fremont, and through his co-operation with the State Board of Health and the Sanitary Corps of the Army has accomplished much in protecting the health of soldiers stationed at the Camp.

FOOD POISONING FROM HOME-CANNED PRODUCTS.

A recent paper by Dr. Ernest C. Dickson of Stanford Medical School, for publication in the Journal of the American Medical Association, brings out the extreme importance of a general knowledge of the dangers of botulism, a variety of food poisoning, which is liable to occur from eating canned foods which have not been efficiently sterilized during the canning process. Dr. Dickson's paper reports 32 outbreaks of botulismus in the United States, in which 81 persons were poisoned and 55 died. Botulism is a poisoning by a toxin which is produced during the growth of the bacillus botulinus, which is an organism which produces spores and grows in the absence of oxygen, therefore is very difficult to kill by the ordinary methods of heating and when the spores have not been completely destroyed in the canning process they proceed to grow in the favorable conditions, notably the absence of oxygen which they find in the interior of the receptacles used in putting up the fruit or vegetables. In addition to the instances of poisoning of human beings above mentioned, there have been many instances of poisoning of domestic animals and fowl, particularly the latter, which are very susceptible.

Seven of the outbreaks affecting human beings and all of those affecting domestic animals occurred in the Pacific coast states. According to Dr. Dickson the increase in the number of outbreaks of botulism in this country bears a very interesting relationship to the marked increase in the practice of home canning of perishable goods which has taken place during the past few years.

The home canning of vegetables is a development of comparatively recent years, but on account of the increased cost of food products since the beginning of the war and especially since the inauguration of the program for the conservation of foods during the past year, the amount of vegetables which are canned at home has tremendously increased. The following by Dr. Dickson is very characteristic of this type of poisoning:

"On Sunday, November 25, 1917, Mrs. E. of Seattle, Washington, opened a jar of home-canned asparagus and cooked half of the contents. None of the persons who ate the cooked asparagus suffered any ill effects. On the following evening she "warmed up" the remainder of the asparagus from the jar, by placing it for a few minutes in warm but not boiling water. Her husband stated that this asparagus did not taste very good, but he ate it all. On Tuesday afternoon Mr. E. complained of disturbance of vision, was nauseated and vomited. On Wednesday morning he was very weak, vomited again after taking food, and had severe diarrhea. The diarrhea continued during the day and following night, and during the night the patient complained of cramps in the legs. There was no abdominal pain during this time, and no disturbance of sensation. During Wednesday afternoon he began to have difficulty in talking. On Thursday Mr. E. was unable to sit up because of weakness, and he complained that he could not hold up his head. He was unable to speak intelligibly, and he complained of dryness in the mouth and pharynx. During the afternoon he began to have difficulty in swallowing, and by evening "all the water returned through his nose." He had much difficulty in clearing thick, tenacious mucus from the pharynx and had severe strangling spells when he attempted to swallow. There was no disturbance of mentality, no pain except the cramps in the legs, and no fever. He was found dead in bed early Friday morning, about two hours after he had succeeded in swallowing a small amount of milk.

On Thursday, November 29, another jar of the same lot of asparagus was opened and was served cold as salad at the Thanksgiving dinner. Two persons partook of the salad and both developed symptoms of poisoning and died. One patient was seen by Dr. O. F. Lamson, who placed his records at my disposal. The clinical course of Dr. Lamson's case was practically identical with that of the case which has been described, although there was much more severe strangling when the patient attempted to swallow. The temperature varied from 97 to 98.8 degrees F., and the pulse from 92 to 128 per minute. The patient died on the fourth day after eating the asparagus salad.

The asparagus was canned according to the directions published in the pamphlet issued by the company which manufactures glass fruit jars, with the exception that it was not parboiled or blanched before it was packed in the jars. The material was purchased in the city market, washed in cold water, packed into one pint and one quart Mason jars which had been boiled, and covered with cold water to completely fill the jars. One half teaspoonful of salt was added to each jar and the covers were loosely applied. The jars were immersed to the neck in a wash-boiler which had a tightly fitted cover, and were allowed to remain for three hours after the water began to boil actively. On removal from the boiler, the jars were tightly sealed and placed in a dark closet.

Another instance described by Dr. Dickson is as follows:

"On Sunday, January 27, 1918, a party consisting of nine persons, five adults and four children, had supper together near Madera, California. The supper consisted of fresh pork, brown beans, bread, butter, milk and home-canned apricots. It was noted that the apricots had a peculiar taste, but eight of the party ate some of them. The only member of the party who escaped illness was the one who did not eat any of the apricots.

On Tuesday morning, January 29, three of the children, aged 3½, 5 and 14 years, respectively, complained of seeing double, and three of the adults complained of dizziness. The three adults also developed diplopia during the day. The fourth adult first showed symptoms of illness Tuesday night, and the smallest child, aged 13 months, became ill Wednesday evening. One of the children died Wednesday morning, January 30, two Wednesday evening and one Friday morning. Two of the adults died during the night of Thursday and the remaining two have apparently recovered after a prolonged illness.''

Another instance was at Oakdale, as follows:

''On Friday, February 22, 1918, Mrs. H. of Oakdale, Cal., tasted a small portion of a bean pod from a jar of home-canned string beans which she had just opened. The beans had a peculiar irritating taste but she swallowed a small amount. When she placed the beans on the stove to cook there was an extremely disagreeable odor and she discarded them.

On Saturday morning, February 23, Mrs. H., was dizzy when she first got out of bed and she staggered when she walked. She noted that vision in the left eye was blurred. By afternoon vision was blurred in both eyes and the staggering was much worse. The patient became alarmed and consulted Dr. J. B. Thompson of Oakdale, to whom I am indebted for the following record:

''When first seen by Dr. Thompson, Mrs. H. was almost hysterical but had no complaint other than that which has been detailed. She said that there had been no pain and no gastrointestinal disturbance, and that she had not even been nauseated.

Examination showed complete dilatation of both pupils, which reacted very sluggishly to light, and a pulse rate of about 100 per minute. The temperature was normal. The patient was very weak and muscular movements were not co-ordinated, but nothing else abnormal was found.

After midnight, Saturday, Mrs. H. complained that her tongue was swollen, and she began to have difficulty in talking. On Sunday morning there was bilateral ptosis and later in the forenoon she began to have difficulty in swallowing. Speech rapidly became unintelligible. About noon on Sunday she began to vomit and the vomiting continued for the greater part of the afternoon. There were no bowel movements during the last thirty-six hours of life. Toward evening on Sunday the patient began to have spells of strangling when she attempted to swallow, and she complained bitterly of the accumulation of mucus in the pharynx, which she was unable to raise.

The patient was very restless and did not sleep during Sunday night or Monday. There was no disturbance of mentality and the skeletal reflexes were intact. There was no disturbance of sensation except a sense of numbness in the hands. She became rapidly weaker and the pulse increased in rapidity. At first there was satisfactory response to stimulation but later there was no appreciable effect. The patient died Tuesday morning, about eighty-eight hours after tasting the beans.

The beans which caused the poisoning were grown in Oakdale and were picked but a few hours before they were canned. They were washed, strung, broken into small pieces and boiled in an open kettle for twenty minutes. They were then packed into new, freshly boiled one-pint economy jars, one tablespoon of salt was added to each jar and the jars were covered, immersed into boiling water, which covered them, and boiled actively for three hours. Twelve jars of beans were canned and two of them spoiled. The contents of nine of the others were eaten after they had been cooked, and appeared, to be good, but there is no record as to whether anyone had eaten or tasted any of the beans before they were cooked.''

Among fruits and vegetables found by Dr. Dickson to have been the cause of botulismus poisoning were corn, beans, peas, apricots, pears and asparagus. It is a certainty that the growth of the bacillus is not limited to these particular products and in the case of home-canned materials particular suspicion should be directed toward and no chances taken with any fruit or vegetable which shows evidence of a slight degree of fermentation.or spoilage or alteration of taste.

These cases illustrate the fact that it is unsafe to eat or even taste home-canned products before they have been boiled. In six outbreaks of botulism the victims were poisoned by simply tasting home-canned goods to determine whether they had spoiled, and in several others the poisoning was caused by the ingestion of salads prepared from uncooked, home-canned vegetables. It is well known that the toxin of B. botulinus is quickly destroyed by heat and outbreak No. 8 is illustration of this fact, since those who ate the cooked asparagus on Sunday night remained in perfect health, whereas the man who ate the remainder of the asparagus from the jar, uncooked, on Monday night, developed the typical spmptoms of botulinus intoxication.

It is not the object of this report to discourage the home-canning of fruits and vegetables or to interfere in any way with the active campaign for the conservation of perishable goods. It is of the utmost importance, however, that those who are directing the home-canning industry should recognize that the present methods of home-canning are not entirely safe, especially in the hands of untrained workers. If they will but admit this fact and will instruct the public that there is possible danger of poisoning from home-canned products, and that the danger may be averted if all home-canned food is boiled before it is eaten or even tasted, outbreaks of botulism from home-canned products will entirely cease.

It should be remembered that while the spores of the bacillus are difficult to kill by heat and thereby occasionally escape the sterilization process, to which the fruits and vegetables are subjected in canning, the toxin which causes the symptoms of poisoning is very easily killed by heat. Therefore, no home canned vegetables should be used without first cooking them before serving. Home-canned fruits, especially when put up by the ''cold-pack process'' should not be used if there is a slight suspicion of fermentative change.

A WATER-BORNE TYPHOID OUTBREAK.

By C. G. GILLESPIE, C.E., Director, Bureau of Sanitary Engineering and FRANK L. KELLY, M.D., Acting Director, Bureau of Communicable Diseases.

The month of May records a serious water-borne epidemic of typhoid in California and shows how easily water chlorination may prove a disastrous failure if not carefully supervised. Merced Falls is a small lumber town of about 350 inhabitants, located on the Merced River in the foothills of the Sierras. The entire town and its utilities are controlled by the Yosemite Lumber Company, which has extensive mills at this point. The town is located on high ground. Streets and buildings are clean and attractive. Complete sewerage, leading to a septic tank which empties into the river below town, has been in existence for a number of years.

The water supply is pumped from the same river just above town. Following an epidemic a few years ago, a chlorinator and a pressure filter were installed. Filter alum is used, presumably, but the water is extremely soft and as coagulation is not provided, the filter is practically nothing more than a strainer. Entire dependence must be placed on the chlorinator for bacterial results.

The first chlorinator was an Electro-Bleach machine but corrosion became so serious that, in August 1917, a Wallace & Tiernan solution-feed chlorinator was substituted, applying the disinfectant into the pump suction, from which the water was pumped to a small elevated tank. Distribution is from the tank and off the pump force-main. The principal weakness in the installation appears to be that some of the water lines on which the machine depends for its pressure become affected with sawdust and the pressure becomes so low that the solution jar can not be kept full of water, causing the chemical to attack the cylinder jar head.

Onset of Epidemic.

On April 15, Dr. D. I. Aller, company physician at Merced Falls, began to receive a few cases of diarrhea. The maximum number of cases occurred during the latter part of April or early in May. Between 50 and 75 per cent of the residents of the town were affected by the diarrheal disturbance. On May 1st two cases of typhoid occurred. Subsequently, the incidence appears to have been as follows:

First week in May	6 cases (one death)
Second week in May	2 cases
Third week in May	4 cases
Last week in May	1 case (secondary)

Water Supply.

On May 14, when the epidemic was about over, the State Board of Health was informed and Dr. Frank L. Kelly, Acting Director of the Bureau of Communicable Diseases, and Mr. Ray F. Goudey, Assistant Engineer in the Bureau of Sanitary Engineering, proceeded to Merced Falls. Investigation showed that on April 20 to 23 Dr. Aller began to suspect the presence of a water-borne epidemic of diarrhea. On investigating the chlorinator he found the solution jar head entirely corroded and the machine out of commission. He was unable to learn when the machine first began to give particular trouble or when it went out of commission entirely. He at once requisitioned a new head but this was not ordered until about May 1. It was installed about May 4 or 5 but the dosage was probably low until May 18. We found a dose of 1.1 pounds per million gallons in use on arrival, May 15. On May 18 the chlorine supply at the water chlorinator ran out and the cylinder of chlorine was taken off the sewage chlorinator and moved to the water chlorinator. Only 4 pounds of chlorine were contained in it, however, and it was applied at the low rate of 1.5 pounds per million gallons, in an effort to conserve the supply until a new cylinder could arrive on May 20. An emergency disinfection was arranged on the sewage by Mr. Goudey, consisting merely of two 50-gallon barrels in which a solution containing 5.25 pounds of bleaching powder per barrel was made up and fed through an ordinary ¾-inch valve (the smallest valve obtainable) into the outlet of the septic tank. This arrangement was set up and operating within thirty minutes. A man was detailed to watch the working of the plant continuously until the new supply of chlorine arrived.

Milk Supply.

Investigation showed that at least eight of the patients obtained milk from the same dairy, one obtained milk from a private cow, one used only canned milk and the milk supply of the other five was not ascertained. At the dairy no new men have been employed in the past year. The three persons who now milk the cows or handle the milk are and have been in good health.

Food Supply.

There was no common food supply. Some of the patients had lived at the company messhouse; others had eaten all their meals at home for a long time previously.

Distribution of Cases.

The cases were scattered throughout the town.

Merced River Watershed.

Suspicion pointed so strongly to the water supply as responsible for the outbreak, that a sanitary survey of the watershed was made in order to locate the source of the typhoid and diarrhea contamination of the river, as the population on the watershed is relatively very small.

Above Merced Falls the Merced River has a watershed lying entirely in the Sierras, having an area of about 1,050 square miles. Close to its headwaters is the Yosemite Valley, 71 miles above Merced Falls. Two highways cross the watershed with Yosemite Valley as the objective. One railroad meanders up the river 54 miles above Merced Falls, with El Portal as its terminus. There is no highway along the river. The only industries of any importance are timbering in the vicinity of El Portal, mining in a small way at several points along the river, and the summer resort business in Yosemite Valley and at Wawona, the latter being on one of the tributaries of the Merced River. Not over 850 people live on the entire watershed and of this number 300 live at Coulterville, so situated that the possibility of stream pollution is remote. About 200 were living at Yosemite Valley, at the time, in resorts having good sewage disposal.

A sanitary inspection of most of the other places on the river was made in connection with this and previous investigations, the findings in three of these places being as follows:

Bagby, 24 miles. This place is quite a settlement, consisting of hotel, store, postoffice and saloon, about 50 people; water supply from springs in winter and from the river in summer. Sewers enter the river from hotel and store, other premises use privies, poor condition. Analyses indicate B. coli in 1 c.c. above and below Bagby.

Mountain King, 32 miles. This is also quite a settlement, about 60 people; water supply from springs in winter and from river in summer. Recent analyses of springs show gross contamination. Six sewers into river.

El Portal, 54 miles. Seventy people, 5 to 10 people use river water, others use springs. One septic tank, serving four houses, discharges into river, two privies in bad shape.

Sewage unquestionably enters the river at El Portal, Mountain King and Bagby. Elsewhere privies are in use and conditions such that there is little likelihood of pollution of the stream except in the rainy season. With the exception of the summer resorts at Yosemite and Wawona, the population is fairly permanent at this time of year. Water supplies are usually from springs at this season, though later in the year many of the settlements use river water direct.

Animal Pollution.

Animal pollution is quite extensive at various points below El Portal. The B. coli content of the river water is higher than can be explained by the number of people sewering into the river and the dilution.

Rainfall.

During the month of April there was a slight fall of rain, about April 20. The gauge at Merced registered 0.03 inch and the records show a slight fall of snow at Yosemite.

Stream Flow.

According to daily gaugings at Merced Falls between March 15 and May 10, the maximum flow recorded on March 19 was 15,000 second-feet, decreasing to about 3,000 second-feet on March 26 when it increased to about 7,500 second-feet, dropping gradually to about 3,000 second-feet on April 11 when it rose to 4,000 second-feet on the 13th, slightly increasing again on the 20th to about 6,000 second-feet at which flow the river remained quite consistently to May 10.

Analyses at Merced Falls.

The following analyses of the raw river water are on file in this office:

January 22, 1918	0.5 B. coli per c.c.
March 21, 1918	0.1 B. coli per c.c.
May 16, 1918	0.1 B. coli per c.c.

These analyses do not indicate what would be termed a gross contamination of the river. They are approximately what would be expected from a watershed having the sanitary conditions as found by the sanitary survey here reported.

Conclusions.

All the evidence points clearly to this epidemic as typically waterborne. There is no suspicion that it could have been due to the ingestion of contaminated milk or food or to insanitary surroundings.

The outstanding features of this epidemic are:

1. The sparse population on the watershed, about 0.8 per square mile.
2. The high dilution by the river of the sewage of people contributing directly at the time of the epidemic, probably 40 million gallons of river flow per person actually tributary.
3. The low B. coli content in the raw river water at Merced Falls, probably not over 0.5 per c.c. at the time of the infection.
4. The failure of chlorination at the very time when it was needed as the sole line of defense against infection. The investigation revealed that no one responsible for the chlorination felt the weight of his responsibility. Time and again the State Board of Health has urged, directed and ordered greater vigilance.

The facts as gathered show simply that poor operation and the lack of interest finally culminated in a corroded solution jar ahead about ten days, and possibly more, prior to the appearance of the epidemic; that nothing was installed as an emergency, and considerable delay elapsed after the order for the part was placed with the manufacturer of the machine.

The company now agrees to appoint a full-time operator in charge of sanitary equipment in order to make every improvement conducive to continuous chlorination, including the better gauging of the flow of water, the frequent reading of the chlorinator, the weighing of the chlorine used and on hand, the keeping of a weekly report of operation, and the periodic sampling of the raw and treated water.

The Merced River is perhaps as innocent appearing a stream as any in the state, not excepting the multitude of creeks which now furnish water to the bulk of the Coast Range cities and towns. At this time of year its flow is tremendous, yet its sources of pollution can almost be counted on the fingers. The experience at Merced Falls illustrates and proves the contention that, at least in the present age, vigilance is the price of freedom from typhoid.

JUNE MEETING OF THE CALIFORNIA STATE BOARD OF HEALTH.

The State Board of Health met in regular session in Sacramento on June 1. The following members were present: Dr. George E. Ebright, president; Dr. F. F. Gundrum, vice president; Dr. Edward F. Glaser, and Dr. Adelaide Brown.

Dr. Gavin J. Telfer was appointed State Health Officer for the Southern District, beginning June 1.

Upon the recommendation of the Director of the Bureau of Venereal Diseases the name of the bureau was changed from "The Bureau of Venereal Diseases" to "The Bureau of Social Hygiene."

Upon the recommendation of the Director of the Bureau of Tuberculosis the subsidy was suspended for twenty-three beds in the Women's ward of the Los Angeles County Hospital, for fifteen beds in Ward 8 of the San Francisco Hospital, and for the entire Tuberculosis ward of the Sacramento County Hospital. These suspensions were made because the standards required by the State Board of Health were not being maintained.

Upon the recommendation of the Director of the Bureau of Tuberculosis, a dietitian will be employed temporarily to go into the tuberculosis hospitals for the purpose of arranging proper diets for the class of patients in these institutions. The secretary pro tempore was instructed to notify all tuberculosis hospitals that separate ward provisions for children must be made.

The board passed a resolution to the effect that a regular collegiate course in Mills College leading to a degree and two additional years of training in the University of California Hospital or Lane Hospital be accepted as meeting in full the requirements of the Nurses Registration Act for an accredited training school.

Certificates as registered nurses were granted to two nurses under the reciprocity provisions of the nurses' registration act.

Upon the recommendation of the Director of the Bureau of Sanitary Engineering, under certain conditions a temporary permit was granted to the Sycamore Canyon Water Company near Glendale. A temporary permit was granted to A. V. Faight of Stockton to use a sewer well in Manteca for a period of six months.

The regular hearings of food and drug cases were then taken up by the board.

F. F. GUNDRUM, M.D.,
Vice President and Secretary pro tem.

REPORT OF THE BUREAU OF ADMINISTRATION FOR MAY, 1918.

W. H. KELLOGG, M.D., Director.

ACTIVITIES OF THE STATE DISTRICT HEALTH OFFICERS.

North Coast District.

ALLEN F. GILLIHAN, M.D., State District Health Officer, Santa Rosa.

During May, Dr. Gillihan accomplished considerable in stimulating the general improvement in sanitary conditions in Benicia. In Eureka he instituted active work in food sanitation and in the control of communicable diseases. Considerable work was done also in improving the sanitation of the Russian River district with special reference to summer resorts. Among the places visited by Dr. Gillihan during the month of May are: Benicia, Rio Vista, Sacramento, Dixon, Vacaville, Napa, Eureka, Calistoga, Cazadero, Marin County, Russian River and Sausalito.

Northern District.

HAROLD F. GRAY, Gr.P.H., State District Health Officer, Chico.

A large part of Mr. Gray's time during the month of May was taken up with plans for the organization of a local health district in Butte County that necessitated visiting many towns in that county, and much time was spent in Chico and Oroville in consultation with citizens relative to the formation of the district. A scarlet fever outbreak in Oroville was investigated by Mr. Gray, who took radical measures for the control of the disease. Smallpox in Tehama County, with the focus at Dairyville, required Mr. Gray's services for several days. A few cases appeared in Red Bluff, but the outbreak was brought under control quickly. Mr. Gray also visited Redding, where considerable work in the control of the venereal diseases was instituted.

Central District.

Ralph W. Nauss, M.D., State District Health Officer, Fresno.

During May, Dr. Nauss visited nearly every town in his district. His inspections during the month included an intensive investigation of conditions in the Yosemite Valley and along the Merced River, with particular reference to methods of sewage disposal. An investigation into the smallpox situation in Porterville was undertaken, and an outbreak of typhoid fever at Merced Falls was also looked into. Some work was done in stimulating interest in the formation of a local health district in Hanford. Calaveras and Tuolumne counties were visited for the purpose of securing data relative to hookworm control. Among the places visited during May by Dr. Nauss are the following: Merced, Merced Falls, Modesto, Newman, Atwater, Livingston, Ceres, Riverbank, Oakdale, Patterson, Gustine, Los Banos, Firebaugh, Hanford, Corcoran, Coalinga, Yosemite, Porterville, Visalia, Exeter, Calaveras County, Tuolumne County.

Central Coast District.

Robert N. Hoyt, S.B., District Health Officer, San Jose.

Mr. Hoyt, during May, visited Santa Cruz and Monterey and also made trips to San Francisco and Berkeley. Several days were also spent in the vicinity of Camp Fremont. The following places were visited by Mr. Hoyt during the month: Santa Clara, Camp Fremont, Mayfield, Menlo Park, San Francisco, Palo Alto, Santa Cruz, Monterey, Salinas and La Honda.

South Coast and Southern Districts.

Edward A. Ingham, State District Health Officer, 210 Union League Building, Los Angeles.

Mr. Ingham, during May, continued in charge both of the Southern and South Coast District. He investigated epidemics of dysentery at Colton, smallpox at Brawley, typhoid at National City, smallpox at Ontario, and dysentery at Santa Ana. Considerable time was spent in connection with the work of mosquito supervision and general sanitation in the vicinity of camps and war industries at Long Beach and San Pedro. Mr. Ingham also devoted considerable time in connection with the proposed local health district in Pomona and vicinity. The following cities were visited by Mr. Ingham during the month: Ontario, Claremont, Covina, Arcadia, Santa Ana, Riverside, Colton, National City, San Diego, Culver City and Santa Monica.

MORBIDITY REPORTS.

Guy P. Jones, Morbidity Statistician.

Morbidity for May, 1918, by Weeks.

	Week ending—					Total May, 1918	Total 1917 May.
	May 4	May 11	May 18	May 28	June 1		
Anthrax	1					1	
Beri-beri	2					2	
Cerebrospinal meningitis	5	5	3	5	3	21	6
Chickenpox	126	142	132	100	101	601	763
Cholera, Asiatic							
Dengue							
Diphtheria	70	54	59	53	53	289	228
Dysentery	2	4	3		1	10	5
Erysipelas	9	14	14	7	16	60	59
German measles	181	120	111	127	102	641	310
Glanders							
Gonococcus infection	84	92	108	150	64	498	174
Hookworm	23					23	
Leprosy					2	2	3
Malaria	7	14	10	6	16	53	33
Measles	658	644	616	537	538	2,993	4,041
Mumps	252	223	176	207	128	986	1,235
Ophthalmia neonatorum			1	1	1	3	3
Paratyphoid		1				1	
Pellagra	1	2				3	3
Pneumonia	73	65	55	54	72	319	177
Poliomyelitis	2	1	3	1		7	2
Rabies							
Rocky Mountain spotted fever	2				1	3	
Scarlet fever	103	77	73	100	85	438	422
Smallpox	26	54	32	21	39	172	16
Syphilis	56	57	34	57	43	247	131
Tetanus		1	1			2	3
Trachoma	1	2	1	1	3	8	11
Trichinosis							
Tuberculosis	149	190	157	139	175	810	624
Typhus fever							
Typhoid fever	12	28	24	28	26	118	70
Whooping cough	163	163	117	131	144	718	500
Yellow fever							
Totals	2,008	1,953	1,730	1,725	1,613	9,029	8,819

SANITARY INSPECTIONS.

Edward T. Ross, Sanitary Inspector.

During the first two weeks of May, sanitary surveys were made of Santa Clara and Mountain View. These surveys included the inspection of food supply places, restaurants, ice cream parlors, soft drink stands, creameries, butcher shops, bakeries, hotels, fruit and vegetable markets, barber shops, billiard halls and fruit vendors' conveyances. A number of food supply places, etc., in San Jose, were reinspected. As a result of these reinspections over sixty-five sanitary certificates were issued.

The last two weeks of the month were spent in Los Angeles and Long Beach in connection with the work being done for the abatement of mosquito and fly nuisances in the regions of shipbuilding plants. A large area of marsh land in the above regions was inspected for mosquito breeding places, and measures instituted for mosquito control work. All restaurants, fish canneries, etc., in the vicinity of the shipbuilding plants were inspected. Printed regulations and verbal instructions were given the owners thereof for the abatement of fly and other nuisances.

SUMMARY OF OPERATIONS.

San Jose, Santa Clara and Mountain View.

Sanitary surveys (cities)	5
Number of premises inspected	119
Number of reinspections made	143
Nuisances abated	420
Food supply places complying with state laws	57
Barber shops complying with regulations	12
Facilities for sterilizing razors installed	24
Facilities for sterilizing glass, etc., in restaurants, ice cream and soft drink stands	57
Washing facilities provided (food supply places)	63
Metal screened or glass food containers installed	96
Doors and windows screened	207
New floors installed in food supply places	7
New toilets installed	6
Toilets screened and made fly-tight	51
Metal garbage receptacles installed	64
Insanitary wooden sinks removed (food supply places)	23
Metal sinks installed	27
Food delivery wagons enclosed	6
Food supply places, entire fronts screened or enclosed with glass	3
Closets or lockers provided for clothes of employees (food supply places)	50
Yards cleaned	17
Certificates issued (army)	69

Los Angeles and Long Beach.

All marsh lands in regions of shipbuilding plants inspected.

Shipbuilding plants inspected	2
Food supply places inspected	49
Fish canneries inspected	21
Miscellaneous premises inspected	20
Reinspections made	80
Nuisances abated	70

REPORT OF THE BUREAU OF COMMUNICABLE DISEASES FOR MAY, 1918.

FRANK L. KELLY, Acting Director.

Bacillary Dysentery.

During the past month the bureau has investigated several outbreaks of bacillary dysentery. The dysentery bacillus has been isolated from five cases. The Southern Branch Laboratory found the Shiga type of organism to be the causative agent in two of the outbreaks, while the Hiss-Russell Y type was isolated from two of the cases in the epidemic investigated by the Berkeley Laboratory. The epidemic caused by the Hiss-Russell dysentery bacillus was in a hospital and had been running for at least eight months before the bureau was asked to assist in determining the cause. An epidemiological investigation showed that the disease was spread by contact, but it has been impossible so far to locate the original focus of infection. There were between fifteen and twenty cases in one of the southern epidemics. In one of the outbreaks the disease seems to have been confined to one family and its immediate contacts, and while there were only five cases, there was one death. Two infections in the other outbreaks have proved fatal.

It would appear that bacillary dysentery is more prevalent in California than has been supposed. Physicians and health officers are asked to be continually on the watch for cases of this kind and to report the same immediately to the state district health officers or to the Bureau of Communicable Diseases. If this is done we hope to be able to locate the source of infection and to prevent the spread of the disease.

In all cases of dysentery the same precautions should be observed as in a case of typhoid. In fact, the disease is much more liable to be spread by contact than is typhoid. This is due to the fact that many of the patients are not confined to their beds as with typhoid and so come in contact with many more persons. On this account it is possible to control the spread of the disease only by observing the strictest precautionary measures, and physicians should be sure to give explicit instructions both to patients and to members of the household.

Division of Biological Examinations.

Summary of Examinations Made in the California State Hygienic Laboratory During the Month of May, 1918.

Condition suspected	Positive	Negative	Inconclusive	Total
Main Laboratory at Berkeley—				
Anthrax	----------	1	----------	1
Diphtheria (diagnosis)	13	53	*4	70
Diphtheria (release)	16	54	*2	72
Dysentery	5	18	----------	23
Gonococcus infection	20	49	21	90
Malaria	6	6	----------	12
Meningitis	1	53	----------	54
Pneumonia	2	----------	----------	2
Rabies	4	3	----------	7
Syphilis (Wassermann test)	36	896	49	981
Tuberculosis (sputum examinations)	18	46	----------	64
Typhoid (Widal test)	8	32	5	45
Typhoid (blood culture)	----------	2	----------	2
Miscellaneous	----------	----------	----------	11
				1,434
Northern Branch at Sacramento—				
Diphtheria (diagnosis)	2	15	----------	17
Diphtheria (release)	1	15	----------	16
Malaria	1	18	----------	19
Tuberculosis (sputum examinations)	1	7	----------	8
Typhoid (Widal test)	----------	12	1	13
Typhoid (excreta)	----------	1	1	2
				75
Southern Branch at Los Angeles—				
Diphtheria (diagnosis)	24	49	6 *2	81
Diphtheria (release)	40	66	*9	115
Dysentery	3	4	----------	7
Gonococcus infection	2	3	3	8
Meningitis	----------	1	1	2
Leprosy	----------	1	----------	1
Rabies	1	----------	----------	1
Tuberculosis (sputum examinations)	6	22	----------	28
Typhoid (Widal test)	6	23	1	30
Typhoid (excreta)	----------	1	----------	1
Miscellaneous	----------	----------	----------	1
Water	----------	----------	----------	166
				441
Total number of examinations	----------	----------	----------	1,950

*No growth.

Division of Epidemiological Investigations.

Epidemiological Investigations and Other Special Investigations During May, 1918.

Main Laboratory at Berkeley—

An investigation of typhoid fever at Merced Falls.
An investigation of Rocky Mountain spotted fever at Portola.
An investigation of dysentery at Santa Ana and Colton.
An investigation of smallpox at Colton.
An investigation of typhoid fever at National City.

Division of Preventive Therapeutics.

Pasteur Treatment for the Prevention of Rabies by the State Hygienic Laboratory During the Month of May, 1918.

	Treatment commenced	Treatment completed
Main Laboratory at Berkeley	0	2
Northern Branch at Sacramento	0	0
Southern Branch at Los Angeles	0	0
Laboratory of Sacramento Board of Health, by deputized bacteriologist	0	0
Laboratory of San Francisco Board of Health, by deputized bacteriologist	0	0
Laboratory of Los Angeles Board of Health, by deputized bacteriologist	0	0
Laboratory of San Diego City Board of Health, by deputized bacteriologist	0	0
Laboratory of Letterman General Hospital, Presidio, by deputized bacteriologist	0	0
Laboratory of United States Naval Hospital, Mare Island, by deputized bacteriologist	1	0
Totals	1	2

Vaccine for the Prevention of Typhoid Fever Issued by the State Hygienic Laboratory During the Month of May, 1918.

Number of physicians to whom vaccine was sent	8
Number of complete treatments sent	182

Opthalmia Neonatorum Prophylactic Outfits Distributed During the Month of May, 1918.

Number of outfits, containing two ampoules each, issued	1,460

Public Health Instruction.

Participation in Instruction in Public Health During May, 1918.

Main Laboratory at Berkeley—

Bacteriological instruction outfits sent out	0
Bacteriological instruction outfits in use	24

Division of Parasitology.

William W. Cort, Ph.D., Consulting Helminthologist.

Early in May the hookworm survey was taken up again in the mines of Calaveras and Tuolumne counties. Analysis of the positive cases from these counties shows that most of the men infected with hookworm had previously worked in heavily infected mines in Amador County. In only one mine of this region is there positive evidence that hookworm is endemic. These results and those in last month's report from the Grass Valley region and the copper mines are encouraging.

To obtain statistics in regard to the prevalence of amœbic dysentery in California, letters of inquiry were sent to a number of the larger hospitals of the state. A number of cases have already been reported, some evidently arising in California. All physicians are requested to report cases of amœbic dysentery coming to their attention.

Summary of Examinations Made in the Laboratory of Parasitology of the State Board of Health During the Month of May, 1918.

	Positive	Negative	Inconclusive	Total
Hookworm	7	175	0	182
Reexamination after treatment for hookworm	2	4	0	6
Total examinations	9	179	0	188

REPORT OF THE BUREAU OF TUBERCULOSIS FOR MAY, 1918.

E. L. M. TATE-THOMPSON, Director.

So great has become the plea, the demand, even, for more beds devoted to the care of the tuberculous that the entire month of May has been spent in a frantic search throughout the south for boarding homes, because of the fact that the sanatoria are filled. The winter season in California has always found us hopelessly lacking in bed capacity, and this winter the bureau hopes, with the opening of Kern County's new sanatorium, Stonybrook, and the Kings-Tulare Sanatorium, to have the San Joaquin Valley well cared for. Meetings are being held now with Merced, Stanislaus, Mariposa and Madera counties, with the aim of establishing in Mariposa County a joint county sanatorium in order to provide care for the tuberculous in these counties.

The need for rural nurses in California has never been so great. Even the Indians are appreciative of the services of rural nurses, and an instance of this appreciation is shown in Madera County, where, upon her arrival, the rural nurse who was sent to work among the Indians by the Parlor Lecture Club of Fresno, received a round of cheers, much to the surprise of the white spectators who were present. Since agriculturists are becoming much more dependent upon Indian labor, because of the unusual conditions existing at the present time, the health of the Indians becomes of greater importance than ever before. These laborers are engaged largely in the handling of food products, and a clean bill of health for the Indians is a necessity at the present time.

In Kern County, Mrs. Ethel Rogers, the rural nurse, provision for whose services is made from the proceeds of the Red Cross seal sale, supplies an interesting report of her work during the month. Besides giving health talks in three rural schools throughout the county, Mrs. Rogers did an immense amount of work among families in the rural districts. In one place she found a case of tuberculosis in a family where ten people were living in one room, about 10 by 12, with one small window. This case was in a railroad camp. The nurse advised the patient to go to the county hospital, but the patient refused to go. The bad housing conditions were reported to the city health officer and the patient was finally transferred by the railroad company. She also visited a family in which there are four cases of tuberculosis, three advanced and one in incipient stage. Some work was done among the Indians of the county as well. During the month Mrs. Rogers visited no less than fifteen families in which tuberculosis cases were present.

The Capital Issues Committee of the Federal Reserve Board has issued orders forbidding the erection of expensive hospitals. This order will not affect the erection of tuberculosis hospitals in California, since the bureau has always discouraged the use of expensive buildings in the treatment of tuberculosis.

Hospitals, Sanatoria and Boarding Homes Visited.

San Diego.
Rest Haven.
Base Hospital, Camp Kearny.
Los Angeles (3).
San Francisco.
San Bernardino.
Fresno.
Stonybrook.
Dr. Kirschner's (Monrovia).
La Vina.
Dr. Howe's.
"Aunt Kate Wright's."

REPORT OF THE BUREAU OF SOCIAL HYGIENE FOR MAY.

LEWIS MICHELSON, M.D., Director.

The title of the Bureau of Venereal Diseases has been changed to that of the Bureau of Social Hygiene. The former name could not be construed broadly enough to include many measures having to do with certain activities looking toward suppression of prostitution and rehabilitation work among women.

As a part of the educational side of the bureau, a publicity campaign has been begun to bring before the people the policy of the bureau, as well as the ramifications of its work. Several metropolitan dailies have promised co-operation and it is also hoped to have the assistance of many smaller newspapers. A series of articles for the purpose of propaganda is in preparation.

The bureau has initiated a campaign to enlist the voluntary co-operation of the druggists throughout the state in eliminating the counter-prescribing evil; much after the same method that has proved so successful in Michigan, where the pharmacists refuse to sell drugs to combat venereal disease except on a physician's prescription. This would in itself help do away with the advertising of venereal nostrums, one of the big factors in the problem. The Director will address the California Pharmaceutical Association upon this subject in July.

Throughout the state, with few exceptions, the policy of the bureau has been endorsed and the co-operation of the local authorities has been most gratifying. Both the treatment and diagnosis of syphilis especially have been greatly stimulated through the issuing of free arseno-benzol and also the issuing of pamphlets on this disease. This is shown by the great number of requests from many physicians in widely separated parts of the state for these pamphlets, and also the many inquiries received requesting information as to the technique of the administration of arseno-benzol. There have also been many inquiries received concerning the diagnosis and treatment of gonorrhœa, but the interest awakened here is not as great as that noted in syphilis.

At the request of the National Council of Defense the bureau has offered its services to the State Council of Defense to furnish lectures on venereal diseases at the meetings of the drafted men in the different counties. The lecture work conducted along the lines of education is being constantly developed and the number of requests for lecturers is continually increasing.

A new set of notification blanks have been issued and can be obtained from the local health officers. They have been numbered serially and are to be forwarded to the local health officer to send to the State Board of Health. The following are facsimiles of these blanks:

No.___________

REMEMBER THIS NUMBER AND FOLLOW INSTRUCTIONS.

You are given this pamphlet of instructions with this serial number by your doctor because the law required him to do so and to report your case to the Health Officer by this number WITHOUT REVEALING YOUR NAME.

If you change doctors for any reason and wish to keep your name concealed you must see to it that the doctor you last consult notifies the doctor previously having charge of your case within TEN DAYS (10 days).

If you fail to come for treatment at the time ordered by your doctor within the period in which your disease is infective and he does not receive notice within TEN DAYS from another doctor, stating that you have placed yourself under his professional care, the doctor giving you this pamphlet is obliged by law to report your NAME AND ADDRESS to the health authorities as a person suffering from a disease dangerous to the public health and presumably not under proper medical advice and care sufficient to protect others from infection. You will then be liable to quarantine or such other procedure as the Board of Health may determine. If you want your name kept secret, follow these instructions carefully. Your doctor will tell you when your case is no longer infectious.

No.____________ **CARD A**

PHYSICIAN'S REPORT OF CASE OF GONORRHOEA OR SYPHILIS.

Srike out gonorrhoea or syphilis as case may be.

Make the Serial Number a Part of Your Case Record.

Date_____________________19____ ______________________________Cal.
City or town

Age________ Sex__________ Color____________ Marital relation__________________
Single, married, widowed, divorced

Occupation___________________________ Date of infection____________________

Source of infection____
Commercial or clandestine prostitute—Address if investigation is indicated

Was patient intoxicated at time of exposure?____________ Unemployed___________

Is patient in infectious state of disease?____If so, is patient likely to infect others?____

Has his case been previously reported?___________ Under what number?___________

Has diagnosis been confirmed by laboratory test?_____________________________
Wassermann, smear for gonococci or spirochete

____M. D.

____
Address

Mail this card immediately to the State Board of Health, Sacramento, and in addition report the case by number to your local health officer.

CARD B Date______________________19___

FORM FOR REPORTING CHANGE OF PHYSICIAN

______________________________Cal.
City or town

DEAR DOCTOR:

In accordance with Section 8 of the regulation of the California State Board of Health governing venereal disease control I herewith notify you that______________
______________________________ of ______________________________
Name of patient Address
reported by you as number__________ and formerly under your treatment, is now under my care and ________ name and address need not be reported to the health
His or her
authorities as provided for according to this regulation.

Respectfully yours,

______________________________M. D.

____
Address

CARD C ______________________________Cal.

FORM FOR REPORTING PATIENT AS DANGEROUS TO PUBLIC HEALTH

______________________________19___
City or town

BUREAU OF VENEREAL DISEASES, STATE BOARD OF HEALTH
525 Market Street, San Francisco, Cal.

Gentlemen:

This is to notify you that______________________________
Name of patient
of______________________________ has not reported to me within ten (10)
Address
days of time appointed, nor have I received any notification that__________ is under
He or she
the care of any other physician. In accordance with Section 8 of the regulations of the State Board of Health governing venereal diseases I am therefore reporting____
__________ name and address.
His or her

Respectfully yours,

______________________________M. D.

____
Address

San Francisco: Dr. Hassler's budget has been approved by the supervisors in the following way:

Twenty-seven thousand eight hundred dollars for Ward L at the San Francisco Hospital. This is the ward for venereal cases in women. Out of this appropriation the clinic at the county jail will have to be maintained. For the extension work at the Relief Home, where from fifty to seventy-five of these women can be taken care of, the supervisors have agreed to give $2,000 a month, but no definite appropriation has been formally made.

Arrangements have been made, at the request of the San Francisco Board of Health, to have Dr. Olga Bridgman conduct the psychopathic examinations of the women who are held in Ward L for the treatment of venereal disease. So far approximately twenty women have been examined. It would, of course, be premature to attempt, after so small a number of examinations, an exact classification of the mental types found, but results are even now suggestive. A small though appreciable number of these women are definitely feeble-minded and have so small a mental capacity that their failure to lead a normal life is assured for this reason alone. A rather smaller number have very good mental capacity and for these rehabilitation should be possible. By far the larger number belong to the border-line type—that is, they have inferior mental capacity though they can not be regarded as feeble-minded. They are capable of earning their living under favorable conditions. Vocationally they are without exception untrained workers and in the industrial field would be capable only of unskilled labor. The opportunities open to them particularly in a city are such as to subject them to the largest amount of temptation; for example, they become waitresses, chambermaids and cafe workers. This group for obvious reasons will be the most difficult to help. There are two things absolutely necessary before they can be expected to take a favorable place in any community. First, they must be put in the best possible physical condition, and second, they must be given industrial training which will make it possible for them to provide decently for themselves, without the necessity of adding to their inadequate incomes in illegitimate ways. Needless to say, any training along industrial lines must be associated with the development of moral ideals and a real wish on the part of these women to take a different place in society to what they have been accustomed. Thus far, all these ends have been attained in a very few institutions in the nature of industrial farms for women. In California at this time there is absolutely no such institution and no place which can in any way be converted to such use. This means that such women as the class above described, of which there must be hundreds throughout the state, are cared for by means of short jail sentences, and the effect on them is as bad as can possibly be imagined.

Facilities for vocational teaching of inmates of Ward L will be afforded through the Associated Charities.

Two of the women in Ward L who had become refractory and refused further treatment were returned to the court and given sentences in the county jail, where the proper treatment could be carried out. This has had a salutary effect upon several other patients who have been inclined to refuse treatment, and there has been no further trouble along this line.

Oakland: The twelfth and thirteenth floors of the City Hall have been equipped for the detention and treatment of those cases quarantined for venereal disease in women. There are several large rooms, well lighted. In the new budget provisions are made for equipping a modern operating room as well as a satisfactory treatment room. There is also included a request for an appropriation for a venereal clinic. The probation officer of the Adult Probation Department carries on the social service work of this department.

Redding: State Health Officer Gray, together with Dr. Sherman T. White, Shasta County Health Officer, quarantined eight prostitutes in Redding on May 24. It is worth noting that five of these were found infected with gonorrhœa, and one of these five was also infected with syphilis. One of the remaining three was doubtful and further examination was required. Those infected are under treatment at the county hospital and as soon as facilities can be arranged there will be a more extensive campaign carried on.

Redwood City: The old jail has been repainted and refurnished as a detention home for the reception of women convicted of vagrancy. A determined effort is being made to care for the camp followers of Camp Fremont. One who was judged insane has been sent to a state hospital. One feeble-minded girl is under careful supervision and others who are infected are being treated. The new quarters which are being provided are very much better than the jail. The San Mateo County Supervisors met May 27 to discuss ways and means of providing a new county hospital, inasmuch as the old hospital is in a deplorable condition. The Social Service Commission of the county, in co-operation with the State Board of Charities and Corrections, submitted to the supervisors resolutions dealing with the reasons why a new hospital was needed at this time. Dr. Ethel Watters of the bureau also talked along these lines. If the endorsement of the federal government can be obtained for the expenditure of this public money the supervisors will probably be able to build a hospital.

Monterey: The mayor and chief of police, working with State District Health Officer R. N. Hoyt, have decided to thoroughly rid the town of Monterey of prostitutes and bootleggers. One infected woman is under treatment at the county hospital in Salinas and two others have been examined. Investigators are earnestly endeavoring to make the town a fit place for the troops at the Presidio.

Los Angeles: The Los Angeles hospital facilities have been taxed to such an extent that Dr. Powers, city health officer, is planning to have an additional building erected on the ground to provide the beds that are necessary for the taking care of these cases. The women who are arrested by the police are immediately taken to the hospital and examined. If found not diseased they are then returned to the legal authorities. This has facilitated the handling of these cases, as so many of them have been found infected that time has been saved by sending them directly to the hospital. All the officials are actively co-operating in the campaign and practically no prostitutes are being released without serving a jail sentence. The time of this sentence is exclusive of time spent in the hospital. The El Retiro Sanitarium at Sylmar is under consideration as an agricultural farm where delinquent women may be detained, and it is probable that the supervisors will appropriate a suitable sum for its purchase and maintenance as such an institution. The county jail has become so crowded with infected women prisoners that the supervisors have appropriated $5000 to build a suitable hospital for these cases. The courts have again upheld, on May 27, 1918, the quarantine in these cases and have dismissed a writ of habeas corpus brought by attorneys for Bessie Jones, to release this woman from quarantine.

The municipal clinic was established in the Temple Block a little more than one year ago. On February 1, 1918, we moved into larger and better equipped quarters, and changed the time of holding the clinics from two to three nights each week. Beginning March 1, 1918, the rooms formerly occupied by the men's clinic were converted into a clinic for private diseases of women, with a competent woman physician in charge. The growth of this department, now but one month old, is very gratifying and shows that the need of this was as great if not greater than the clinic for men. Following is a tabulation covering the period from March 1 to April 1:

New cases registered	**16**
Cases discharged	**4**
Total cases under treatment	**24**
Total treatments given	**64**
Examinations for sterility	**0**

Diagnosis of New Patients.

Acute gonorrhœa	**2**
Chronic gonorrhœa	**0**
Syphilis	**10**
Sexual neurasthenia	**0**
Acne	**0**

The men's clinic has had a steady growth from its beginning, March 1, 1917. At this date 365 patients have been registered and under treatment. A total of 2,882 treatments have been given and nearly 100 injections of salvarsan in addition, the latter being furnished free of charge by the State Board of Health. [Above copied from "Public Health," published by Los Angeles City Health Department, February-March, 1918.]

Long Beach: Long Beach has established a public clinic for the treatment of venereal cases and will establish a suitable isolation hospital in the near future. The bureau was instrumental in stirring up public opinion, and with the co-operation of the local officials, together with representatives of the Council of National Defense and the California Military Welfare Commission, a satisfactory program was outlined in which the above procedures were included.

San Diego: San Diego is very active in the venereal disease campaign. The County Clinic maintained in the city takes care of all ambulatory venereal cases. The county hospital accepts and treats any case referred to it by the county physician. The Mission Valley Hospital, which was built especially for the treatment of infected women, has accommodations for thirty-five. All women are sent by the police to the hospital to be examined and if found not diseased are returned to the police. There is a very noteworthy spirit of co-operation between the health authorities and the police of San Diego. Dr. Joseph Weinberger has been appointed physician in charge of the Mission Valley Hospital, Dr. Welpton having resigned. Camp Kearny shows a remarkably low venereal disease record, evidencing the results of preventive work. It has fewer venereal cases than any military camp in the United States. In some weeks there have been no new venereal cases developing at this camp. Military and local authorities are to be commended on this excellent showing.

Bakersfield: The former tuberculous pavilion at the Kern County Hospital is being renovated for male patients with venereal disease and a new wing for women patients is under construction. This hospital will have accommodations of sixteen male and twelve female cases of this kind. Dr. Compton has been appointed assistant to the county health officer to take care of the venereal situation.

Arseno-Benzol Distributed by the Bureau During May.

Los Angeles County Hospital	100
Mission Valley Hospital	100
San Francisco Hospital	50
San Diego County General Hospital	50
Los Angeles Department of Health	50
Fresno County Clinic	48
San Francisco Health Department	25
Santa Clara County Health Department	24
Kern County Hospital	24
San Bernardino General Hospital	23
Fresno City Clinic	21
University of California Hospital	20
Oakland College of Medicine	9
Shasta County Hospital	3
	547

Treatment reports received:

201	patients received one dose	201
48	patients received two doses	96
15	patients received three doses	45
6	patients received four doses	24
1	patient received five doses	5
1	patient received six doses	6
272		377

Other occupations	100
Prostitutes	54
Laborers	54
Prisoners	44
School children	15
No occupations	5
	272
Males	158
Females	114
	272

Patients treated:

Los Angeles County Health Department Jail Clinics, County Hospital, Los Feliz Hospital, Juvenile Hall.	86
San Francisco jails (Nos. 1, 2 and 3.)	43
San Francisco Health Department Emergency Hospital, San Francisco Hospital, Potrero Emergency.	27
Kern County Hospital	24
San Diego County Hospital	23
Mission Valley Hospital	15
Fresno County Hospital	14
Temple Block Clinic	12
San Bernardino County Hospital	9
Oakland College of Medicine	5
Stanford Clinic	4
University of California Hospital	3
Lane Hospital	3
Sacramento County Hospital	2
Fresno City Clinic	2
	272

Total number of arseno-benzol ampoules distributed	2,623
Total number of treatment cards received	1,580
Total number of treatment cards distributed and not returned	1,043
	2,623

REPORT OF THE BUREAU OF VITAL STATISTICS.

GEORGE D. LESLIE, Director.

Births, Deaths and Marriages for April.

State, Totals and Annual Rates. The following table shows for California as a whole, the birth, death and marriage totals for the current month of the year to date in comparison with corresponding figures for last year, as well as the annual rates per 1,000 population represented by the totals for the current month and the year to date. The rates are based on an estimated midyear population of 3,129,584 for California in 1918, the estimate having been made by the United State Census Bureau method with slight modifications.

Birth, Death and Marriage Totals, with Annual Rate per 1,000 Population, for Current Month and Year to Date, for California: April.

Month or period	Total		Annual rate per 1,000 population, 1918
	1918	1917	
April—			
Births	4,565	4,350	17.7
Deaths	3,871	3,486	15.0
Marriages	2,695	3,220	10.5
January to April—			
Births	17,503	16,258	17.0
Deaths	15,083	14,821	11.1
Marriages	9,965	11,082	9.7

The above figures show an increase of 215 births for April, 1918, over April, 1917; also an increase of 385 deaths, and a decrease of 525 marriages.

The first four months of the present year also show an increase in births and deaths over last year, while the marriage total is considerably less.

Length of Residence. The length of residence in California for the 3,871 decedents in April was as follows: Under 1 year, 325, or 8.4 per cent; 1 to 9 years, 661, or 17.1 per cent; 10 years and over, 1,683, or 43.5 per cent; life, 1,051, or 27.1 per cent; and unknown, 151, or 3.9 per cent.

For residents of the 70 cities of 2,500 population in 1910, there were 76 births and 146 deaths, which occurred in registration districts other than the city of residence.

County Marriage Totals. The counties showing the highest marriage totals for the month were as follows: Los Angeles, 572; San Francisco, 534; Alameda, 271; San Diego, 159; Orange, 110; Sacramento, 110; Santa Clara, 89; Fresno, 78; San Joaquin, 72; San Mateo, 71; San Bernardino, 54; Kern, 41; Santa Barbara, 39, and Marin, 36. The aggregate for San Francisco and other bay counties was 931, against 682 for Los Angeles and Orange counties together.

County Birth and Death Totals. Exclusive of stillbirths in both cases, the birth and death totals for the month were as follows for the leading counties, arranged in decreasing order of birth registration:

County	Births	Deaths	County	Births	Deaths
Los Angeles	1,114	967	Orange	102	58
San Francisco	696	695	San Bernardino	95	96
Alameda	473	350	Kern	91	50
Fresno	193	137	Contra Costa	76	45
Sacramento	143	137	Santa Barbara	67	31
San Joaquin	135	133	Sonoma	63	60
Santa Clara	133	140	Butte	52	43
Tulare	108	40	Solano	50	33

City Birth and Death Totals. Birth and death totals, exclusive of stillbirths are presented similarly for the principal California cities below:

City	Births	Deaths	City	Births	Deaths
Los Angeles	747	597	Fresno	54	58
San Francisco	696	695	Long Beach	50	47
Oakland	299	203	Bakersfield	49	36
San Diego	128	100	Pasadena	47	43
Sacramento	100	113	Santa Barbara	40	22
Stockton	73	90	Richmond	34	13
San Jose	59	45	San Bernardino	32	34

Causes of Death. The following table shows the classification of deaths in California for the current month, in comparison with the preceding month:

Deaths from Certain Principal Causes, with Proportion per 1,000 Total Deaths for Current and Preceding Month, for California: April.

Cause of death	Deaths, April	Proportion per 1,000	
		April	March
All causes	3,871	1,000.0	1,000.0
Typhoid fever	15	3.9	3.3
Malarial fever	2	0.5	0.8
Measles	29	7.5	6.6
Scarlet fever	11	2.8	1.5
Whooping cough	25	6.5	6.4
Diphtheria and croup	18	4.7	5.1
Influenza	26	6.7	5.1
Other epidemic diseases	9	2.3	3.8
Tuberculosis of lungs	506	130.7	126.9
Tuberculosis of other organs	66	17.0	17.8
Syphilis and gonorrhea	28	7.2	8.7
Cancer	273	70.5	67.6
Other general diseases	137	35.4	32.6
Meningitis	37	9.6	8.7
Other diseases of nervous system	332	85.8	89.5
Diseases of circulatory system	569	147.0	150.4
Pneumonia and broncho-pneumonia	441	113.9	125.4
Other diseases of respiratory system	101	26.1	26.5
Diarrhea and enteritis, under 2 years	68	17.6	7.6
Diarrhea and enteritis, 2 years and over	27	7.0	6.6
Other diseases of digestive system	208	53.7	57.6
Bright's disease and nephritis	317	81.9	83.6
Childbirth	28	7.2	11.0
Diseases of early infancy	149	38.5	33.4
Suicide	67	17.3	18.4
Other violence	244	63.0	62.7
All other causes	138	35.7	32.4

There were 572 deaths, or 14.8 per cent of all, in April, from the various forms of tuberculosis; 569, or 14.7 per cent, from diseases of the circulatory system, and 542, or 14.0 per cent, from diseases of the respiratory system (includes 441 deaths from pneumonia and broncho-pneumonia).

Tuberculosis claimed the greatest number of deaths in the month of April, with heart disease following closely. Other notable causes of death for the month were as follows: Bright's disease and nephritis, 317; violence, 311 (accidents, suicide, etc.); diseases of the digestive system, 303, and epidemic diseases, 135.

The deaths from the three leading epidemic diseases reported for the month were distributed by counties as follows:

Measles		Influenza.		Whooping cough	
Alameda	2	Alameda	4	Alameda	6
Colusa	1	Butte	3	Contra Costa	1
Contra Costa	1	Colusa	1	Fresno	2
Fresno	7	Fresno	1	Imperial	1
Kings	2	Humboldt	1	Inyo	1
Riverside	1	Imperial	1	Kern	2
San Bernardino	1	Los Angeles	2	Orange	1
San Diego	3	Orange	1	San Diego	1
San Francisco	3	Placer	1	San Francisco	4
San Joaquin	1	Sacramento	1	San Joaquin	2
Santa Barbara	1	San Diego	3	San Mateo	1
Santa Clara	2	San Francisco	1	Solano	1
Tehama	1	Santa Clara	1	Sonoma	1
Tulare	1	Shasta	2	Stanislaus	1
Ventura	1	Stanislaus	2		
Yolo	1	Tehama	1		
	29		26		25

Sex, Race and Nativity. The proportion of the sexes among the 3,871 decedents in April was: Male, 2,394, or 61.8 per cent, and female, 1,477, or 38.2 per cent.

The race distribution of decedents was: White, 3,642, or 94.1 per cent of all; Chinese, 81; Japanese, 81; Negro, 48, and Indian, 19.

The 3,642 white decedents were classified by nativity as follows: California, 977, or 26.8 per cent; other states, 1,479, or 40.6 per cent; foreign countries, 1,093, or 30 per cent, and unknown, 93, or 2.6 per cent.

Infant Mortality. There were 379 deaths for children under 1 year which were distributed by age in months as follows: Under 1 month, 200, or 52.8 per cent; 1 to 2 months, 48, or 12.7 per cent; 3 to 5 months, 57, or 15.0 per cent; 6 to 11 months, 74, or 19.5 per cent.

In certain cities the deaths under 1 year were as follows: San Francisco, 52; Los Angeles, 48, and Oakland, 25.

The 379 deaths under 1 year, in comparison with the 4,565 live births reported for the month, show an infant mortality ratio of 83 per 1,000.

For the same month last year there were 286 deaths under 1 year of age, which, compared with the 4,350 live births reported, made an infant mortality ratio of 66 per 1,000.

REPORT OF THE BUREAU OF SANITARY ENGINEERING FOR MAY, 1918.

By C. G. Gillespie, C.E., Director.

The main work of the current month consisted in a preliminary survey of the Sierra foothill towns of Plymouth, Ione, Jackson, San Andreas, Angels and Sonora, a preliminary survey of the north coast district off of the traveled highways, investigation of a typhoid epidemic at Merced Falls and much inspection work in the south, especially at the aviation and military camps. Full notes appear in the body of this report. The water-borne Merced Falls epidemic was particularly serious and interesting from many viewpoints, as pointed out in the special article appearing elsewhere in this bulletin.

SEWAGE DISPOSAL.

Applications for Permits Filed.

Corcoran. To construct a new sewer system and Imhoff tank.

Corona. To operate the existing sewer system and septic tanks, with disposal onto land.

Coronado. To use the existing sewer system, discharging through two outfalls into San Diego Bay.

Escondido. To continue to operate present sewer system and septic tank.

Exeter. To operate present sewer system and Imhoff tank, the effluent being used on an alfalfa field owned by the city.

Fortuna. To discharge the effluent of two septic tanks, one into Rohner Creek and the other into a small creek that flows into Eel River.

Hillsborough. To discharge sewage through two outfalls into San Francisco Bay.

Huntington Beach. To use the existing sewer system and septic tank, the effluent discharging into the Pacific Ocean.

Martinez. To construct a sewer outfall and disposal system, in accordance with plans filed with this board.

Santa Ana. To operate and maintain the municipal sewer system, using the sewage to irrigate land owned by the city and also lands adjacent thereto; also to complete its contract with the Southern California Sugar Company for the disposal of sewage through their pipe line into the Pacific Ocean.

Manteca, A. V. Faight. To maintain a sewer well at Manteca.

Permits Granted.

Manteca, A. V. Faight. To use a sewer well for a period of six months, the permit to be renewed for another period of six months if the town is incorporated and has taken definite action toward the construction of a sewer system.

Plans Filed.

Martinez. Plans for sewer system and Imhoff tank.

March Field. Plans for Imhoff tank for aviation school.

Investigations, Inspections, Reports and Conferences.

Reedley. May 8. Reinspection of Imhoff tank and sprinkling filter. Semi-floating wastes from dried peach peeler of local cannery, amounting to 10,000 gallons solids daily during the season, recently clogged sprinkling filter. Removed by resting filter for a couple of weeks. Inspected the cannery with a view to recommending treatment or other disposal. Find waste neutral, high in peach skins of the dried peaches (about 35 per cent solids), which first tend to float, then settle slowly after several hours. Drainage impracticable. Advised making application to State Board of Health for disposal direct into Kings River.

Represa. May 7, 20 and 21. Activated sludge plant still being tuned up.

Jackson. May 21. Town still without comprehensive sewerage. Many houses built along Jackson Creek and branches sewer direct into creeks in heart of town. Creeks now filthy. Said that smells become unbearable when streams begin to dry up and weather gets warm.

Plymouth, Ione, San Andreas, Angels Camp. May 20-21. The mining towns are alike in that sewerage is lacking. Plymouth is known as "the typhoid town" in that region.

Pasadena. May 3. Reinspection of experimental activated sludge plant. The bureau this month has made long series of bacterial examinations of effluent from this plant. The average bacterial content was found to be about 145,000, representing a reduction of about 97 per cent compared with the raw sewage. The effluent is uniformly clear and stable.

Japanese Camp, Santa Monica. May 9. This is a fishing camp of about 200 population, situated on beach within Los Angeles city limits. Sewers are proposed. A septic tank with ocean outfall will probably serve as means of disposal.

Los Angeles. May 9. The new Hyperion outfall was visited. Sewage is now discharged below water 2,000 feet from shore and odors appear to be less noticeable than when the old 1,000-foot outfall, discharging above water, was in use. Beach contamination has not been materially remedied with the new outfall.

March Field, Alessandro. May 11 and 24. Sewage from the aviation school will pass through an Imhoff tank and be used for irrigating an adjoining ranch. The plant is completed, but sewage is not yet flowing. The school will have a population of about 1,000. A tract of about 70 acres is available for irrigation.

Anaheim. May 13. City is hastening work on construction of addition to Imhoff tank. The 100-day limit set by court to abate nuisance will expire about July 1. Irrigation of privately owned lands has been stopped and in future an effort will be made to dispose of all sewage, about 700,000 gallons daily, on the twenty-acre city farm. Cropping on this land will be stopped and all attention given to distributing water and keeping soil loose.

Fullerton. May 13. The Imhoff tank and city sewage farm are badly neglected and, except for their isolation, would probably be a cause of complaint. The farm is not being cultivated and has developed a rank growth of weeds. It is leased to a Chinaman, who diverts part of the sewage onto other land.

Long Beach. May 14. Reinspection of Riensch-Wurl screen.

Ventura, Ventura State School. May 15. The septic tank is source of pronounced odors in its immediate vicinity, but is not cause of offense to school or neighbors. Effluent used for irrigating garden, but only in a manner complying with state regulations. In future it is planned to use this water entirely on an alfalfa field.

San Diego. May 21. Two of the four sewer outlets in San Diego Bay are cause of some offense due to deposits on mud flats. Engineers have been engaged to report on possibilities of remedying these conditions.

Camp Kearny, San Diego. May 22. The septic tank continues to produce a very poorly clarified effluent and is source of foul odors. Its isolation, however, prevents it from being a nuisance. The only persons living near the canyon into which effluent is discharged are about 5 miles down stream. They recently complained of odors. Investigation at that point showed the flow to consist of clear, odorless water, with no visible indications of sewage pollution.

Rockwell Field, San Diego. May 22. The army aviation school on North Island has a sewer outfall discharging into ocean 700 feet from shore and in 20 feet of water at low tide. This point is about two miles from the Coronado beaches. The marine aviation school will have an outfall to the bay on the north side of the island. This sewage will be carried out into the main channel.

Hemet. May 23. Reinspection of septic tank and sewage farm. Tank produces well clarified and practically odorless effluent, which is stored in an open irrigating reservoir, often several days. No nuisance is produced. Farm is well kept. No crops are growing now other than peach trees.

Ontario. May 24. Reinspection of sewage farm. City of Upland's sewer system will soon be completed and this sewage will also be disposed of on Ontario farm. Ample area is available for this addition and pumping of some clear water for irrigation will still be necessary.

Chino. May 24. Reinspection of Imhoff tank and farm. Farm was recently leased to American Beet Sugar Company, which owns all adjoining land. This company is to care for tank. Tank and farm are in good condition. A crop of barley is being taken off now. Field corn will be planted next.

Yountville, Veterans' Home. May 8. Complaints of odors from disposal plant at the home have been received. Odors due to effluent of septic tank draining along open ditch by side of county road. During the day in the summer effluent used for irrigation, but at night ditch has been used. It was decided to keep sewage out of the ditch during the summer.

South San Francisco. May 20. City completely sewered except the manufacturing plants east of railroad. With the exception of three blocks, sewage drains to 24-inch sewer outfall south of city. Outfall drains into open ditch, then into slough of San Francisco Bay. The other outfall drains to marsh just east of railroad station and then to slough.

Willits. May 1. Town is well sewered. Sewage flows through outfall about a mile to a septic tank. Tank divided into two sections, one of which is covered and the other open. Sewage flows from open section into ditch and ultimately into creek, which is tributary to the Eel River.

Fort Bragg. May 3. Town is well sewered. Is divided into three districts, each of which is served by an 8-inch outfall. All outfalls drain into the Pacific Ocean. Outfall sewers are too small for much growth in the town. No nuisance around end of outfalls.

Mendocino. May 3. Portions of town, which is incorporated, served by two private sewers. One in main part of town has about seventy connections, the other only five. Outlet of large sewer at top of 40-foot bank of river where it empties into ocean. No nuisance around this outlet. Outlet of smaller sewer on level sand area, washed up by tides. Owing to logs, brush and other debris, sewage has pooled at end of sewer, causing unsightly condition. Impossible to extend outlet to water as topography changes every season. It was suggested that area near outlet be cleared of debris and sewage be spread over this area.

Benicia. May 7. A visit made to the town to ascertain present status of sewerage system recently recommended for this town. Engineer has made surveys for a sewer to serve the eastern part of the city. Board of Trustees were urged to have sewers surveyed and designed for city as whole, the more important sections then to be built.

Merced Falls, Yosemite Lumber Company. May 16. Defect in chlorine distribution feed in the contact tank causes an escape of a great portion of the gas. A new distribution of the solution into the tank was devised. The weir has been materially improved. A good record is now being kept. Chlorination has not been continuous, owing partly to a faulty compensating valve. An emergency hypochlorite treatment plant was installed at the septic tank during the typhoid epidemic when the supply of chlorine ran out.

Porterville. May 19. An inspection was made of the sewerage works at Porterville. City is well sewered. Flat grades are used, making it necessary for the entire system to be completely flushed out three times a year. Sewage disposal consists of a treatment plant with a grease trap, a grit chamber and four septic tanks, with final disposal onto a sewer farm. Alfalfa is the only crop on sewer farm. The grit chamber was poorly designed and too large and septic action produces a thick scum, which, on account of its varying level, clogs the various inlets to the septic compartments. Effluent showed good clarification at time of inspection.

WATER SUPPLIES.

Applications for Permit Filed.

Colfax, Pacific Gas and Electric Company. To use the existing system of dams, ditches, flumes, tunnels, pipes, reservoirs and distribution pipes for the purpose of supplying water for domestic purposes to the town of Colfax. The sources of supply are the North Branch of the North Fork of the American River, Bear River and the South Fork of the Yuba River. The water is treated with chlorine gas.

Covina. To continue to supply water to Covina and surrounding territory, derived from San Gabriel River.

Exeter. To continue to use existing wells.

Fortuna, Fortuna Water Company. To supply water to the residents of Fortuna, the supply being obtained from driven points in the river bar of Eel River, pumped to a 500,000-gallon concrete reservoir. (Less than 200 consumers.)

Martinez. To purchase from the Port Costa Water Company its present water distributing system in the town of Martinez and territory immediately adjacent thereto, thereafter to purchase water at wholesale from said company and to retail same.

Oroville, Pacific Gas and Electric Company. To continue to supply water to the inhabitants of Oroville, derived from the West Branch of the North Fork of Feather River. The water is treated with chlorine gas.

Santa Ana. To continue to supply water to residents of the city, taken from wells 150 to 1,000 feet deep.

Upland, Citizens Land and Water Company. To continue to supply domestic water, the supply being obtained from the San Antonio Water Company. The sources are San Antonio Creek, San Antonio Canyon, wells and tunnels.

Glendale, Title Guarantee and Trust Company, Trustees. To continue to supply water derived from Verdugo Canyon stream to that part of the city of Glendale formerly known as the city of Tropico.

Permits Granted.

Glendale, Sycamore Canyon Water Company. A temporary permit was granted to this company to continue to supply water for domestic purposes to certain families residing in Sycamore Canyon, just northeast of the city of Glendale. Water is derived from tunnels in the hillside and a dug well in the bottom of the canyon.

Plans Filed—None.

Investigations, Inspections, Reports and Conferences.

Long Beach. May 14. Water supply derived from five pumping plants with total of seventeen tubular wells ranging from 200 to 1,000 feet in depth. Sources apparently well protected. Analyses show good sanitary quality.

Ventura. May 16. Reinspection of Ventura River, which is principal source of supply. This water is now being chlorinated. Placarding of the fishing and camping grounds along the river is desirable.

March Field, Alessandro. May 11. Arrangements have been made to obtain a supply from deep wells on an adjoining farm, formerly used for irrigation. Clarified sewage from the camp will be returned to this farm for use in irrigating.

Willits, Willits Water Company. May 1. Supply is obtained from small storage reservoir formed by a dam across James Creek. Through center of reservoir there is a gravel embankment. All water must pass through this filter before entering outlet pipe. Filter has no effect on quality of water. Halfway between the dam and town there is a 17,000-gallon reservoir acting as a pressure break. Only about 50 per cent of town is supplied by company. Quality of water, good.

Fort Bragg. May 3. Supply obtained from Newman Creek. This creek is fed by springs. Water flows two miles to 3,000,000-gallon reservoir situated about one mile east of town limits. Quality of water, good.

Elk, Goodyear Redwood Company. May 4. Supply obtained from small creek in hills, about two miles from town. Water flows through small settling tanks before entering mains. Two houses on watershed, part of watershed cultivated. Quality of water, poor, from bacterial standpoint.

Vallejo. May 7. At request of United States Navy Department at Mare Island, re-examination of supply was made. City had been pumping water from Green Valley Creek to augment supply from lakes. Creek water polluted, due to wastes from houses and fruit pickers on banks. City ordered by Navy Department to stop pumping this water. City now driving wells in Green Valley and is to purchase chlorinator to chlorinate entire supply at Flemming Hill reservoir and clean up watershed of Green Valley Creek, prior to using creek water again.

Benicia, Benicia Water Company. May 8. Examination of water in reservoirs showed excess algæ growths in Paddy reservoir. Water in reservoir appeared turbid, but no growths on shore. Company advised to dose with copper sulphate at rate of 16 pounds per million gallons.

Alameda, Berkeley and Oakland. May 16 and 17. Regular monthly sampling of various sources and taps of the East Bay Water Company supply.

South San Francisco, South San Francisco Water Company. May 20. Supply obtained from ten wells. Water pumped by air into wooden tanks, from which water flows to suction of main pumps. Pumped into mains, overflow to reservoir on hill near Federal Wireless Company plant. Quality of water, good.

San Francisco, Spring Valley Water Company. May 24. Visit was made to San Andreas, Pilarcitos, Upper and Lower Crystal Springs Reservoirs, also to the Belmont and Millbrae pumping stations, preparatory to taking regular samples.

Represa and Folsom. May 20. Collected samples of water. The latter showed contamination, due probably to fact that supply of chlorine had run out.

Plymouth, Ione, Angels Camp, Jackson. May 20 and 21. Supplies are typical of the Sierra foothill towns. Water is diverted from the main streams—Cosumnes or Mokelumne—ditched long distances in old mining ditches, and wholesaled to the private utility. In quality they are nearly always contaminated and in winter they are muddy.

Sonora, Sierra and San Francisco Power Company. May 22, 23 and 24. Inspection of entire watershed and ditch system. Supply is obtained from Sullivan Creek and Stanislaus River, diverted at Lyons Dam into an extensive ditch system leading to a power house, thence via Power House Creek to Phœnix Lake, thence via two ditch lines to Sonora. Sullivan Creek is a small stream entering Phœnix Lake independently. Inspection reveals sources of pollution at Strawberry Resort and private camp grounds in vicinity, at camps of Standard Lumber Company on Stanislaus River above Lyons Dam, and from some thirty-four small camps and premises on Power House Creek and Sullivan Creek. Inspection of these premises, nearly all owned by old settlers, shows that almost all have outdoor privies, of which over 90 per cent of the vaults were completely filled above the ground, and, being located on hillsides, the contents of necessity wash down hill to water courses. But few water-flushed toilets are used, but where installed good cesspool or underground disposal is employed. Directions were given to abandon all privies needing cleaning and to relocate on high ground, far from streams or waterways, over a deep vault, well braced against caving and protected by ditching against surface runoff.

Merced Falls, Yosemite Lumber Company. May 16. Neglect of chlorinator was responsible for a typhoid epidemic at Merced Falls. For an indefinite period before the outbreak of the epidemic the chlorinator had been out of service, and even after its condition was discovered a delay of two weeks followed before new parts of the machine could be installed. At the height of the epidemic the supply of chlorine gave out, and by taking the chlorine tank from the septic tank chlorinator and using a minimum chlorine dose, the machine was kept in operation till a new tank arrived. The company now realizes the necessity of constant and intelligent supervision concerning the operation of the chlorinator, and a water inspector has been appointed. A good weekly record containing readings taken four times daily is now being kept. A dose of 2.5 pounds per million gallons is being used.

Hayward Heath. May 23. Hypochlorite treatment, with an available chlorine dose of 4.5 pounds per million gallons, is effective in removing B. Coli from the untreated water. No complaints have been made as to tastes or odors. A daily record is kept, showing the time the pump is started and stopped, the time the chlorine solution was mixed previous to starting pump and the number of ounces of hypo added with each mix.

Porterville. May 19. An inspection was made of the water supply at Porterville. Supply is obtained from five deep wells. Storage amounting to 475,000 gallons is provided at three different points in the system, thereby providing good circulation. The consumption of water is high, from 120 to 375 gallons per capita per day. Quality is good.

MISCELLANEOUS INVESTIGATIONS.

Long Beach. May 2. Visited with reference to mosquito nuisance arising from tide flats on Terminal Island. Shipbuilding yards are menaced and it is planned to begin an active campaign of extermination.

Escondido. May 23. A new canning company here desired advice regarding waste disposal. Waste will be discharged into Escondido Creek. A settling tank was advised as a beginning treatment. It is possible that additional treatment will prove necessary, as there is no diluting water in creek during canning season.

El Monte. May 28. Cannery waste disposal along roadside near center of town has caused serious nuisance. Conveyance of this water in open ditch along railroad right of way to point west of town has been suggested for temporary relief. Partial clarification in a tank at the plant has also been recommended.

LABORATORY WORK.

The following is a summary of the work done by the laboratory of the Bureau of Sanitary Engineering for March, 1918:

Los Angeles Office.

Bacteriological examinations of water	75
Bacteriological examinations of sewage	84

Berkeley Office.

Bacteriological examinations of water	391
Chemical examinations of water (partial)	396
Microscopic examinations of water	34
Bacteriological examinations of sewage	4

REPORT OF THE BUREAU OF FOODS AND DRUGS FOR MAY, 1918.

E. J. LEA, M.S., Director.

One hundred and forty-seven samples of foods, drugs and miscellaneous materials were received at the laboratory during the month of May.

The official samples of foods and drugs consisted of cheese, condiments, cream, eggs, egg substitutes, extracts, fish, flour, fruit, ice cream, liquors, meats, milk, pastes, pastry, syrups, vegetables and walnuts, dandruff cure and tincture of iodine.

The unofficial samples consisted of bread, bread dough, condiments, confectionery, dried egg, feed stuffs, fish, flour, fruit, lard, meat, milk, nuts, pastes, vegetables and vinegar, and saccharine crystals.

The state institutions submitted samples of cheese, chocolate, flour, soap, spices and starch.

Sliced Meats in Glass Jars.

Seventy-five samples of sliced dried beef, sold in glass jars, have been examined at this laboratory during the past two months. These samples were collected at random from retail stores in various parts of the state and they appear to fairly represent this article of food as purchased by the consumer.

Only 20 per cent of these samples were found to be in first-class condition. The remaining 80 per cent contained excessive bacteria, ranging from one billion per gram to forty billion per gram. Several samples contained mold and many of them had a disagreeable, tainted odor. Sliced beef put up in this manner is not sterilized and, therefore, is subject to comparatively rapid deterioration. Investigations indicate that manufacturers do not guarantee sliced beef put up in glass jars for more than three months. Records of the above samples indicate that many of them were on the shelves of the retailers for more than one year and that more than half the samples were in the hands of the retailers for a longer period than was covered by the manufacturers' guaranty.

Proceedings have already been instituted under the California Pure Food Act against dealers and manufacturers for selling decomposed sliced dried beef, and this department will continue to investigate all the unwholesome material of this character on our markets. Dealers should check over their stocks of dried sliced meats in glass in order to be certain that it is in good condition. It is not safe to hold dried sliced meats longer than is indicated in the manufacturer's guaranty. Owing to the difficulty in properly preserving meat, as indicated above, the State Board of Health, after considerable investigation, disapproves of the present method of putting up sliced meat in glass containers.

ARTICLES OF FOOD CONDEMNED.

The following articles of food, condemned upon physical and chemical examination as unfit for food, were either destroyed or denatured during the month of May, 1918: Crabs, 500 pounds, decomposed, San Francisco; figs, 5 pounds, wormy, Sacramento; Dill pickles, 1,200 quarts, decomposed, San Francisco; egg substitute, 40 pounds, filthy, San Francisco; hop and malt vinegar, 59 quart bottles, imitation product, Oakland; Jack cheese, 1,864 pounds, decomposed, San Francisco; meat paste, 10 dozen 4-ounce tins, decomposed, San Francisco; olives, 728 gallons, decomposed, San Francisco;

old-fashioned molasses, ¾ dozen, fermented, Oakland; salted anchovies, 303 11-ounce cans, decomposed, San Francisco; squabs, 25 pounds, decomposed, San Francisco; tomato catsup, 8 barrels, filthy, decomposed, San Francisco; tomato catsup, 12 14-ounce bottles, adulterated and mislabeled, Los Angeles; tomato catsup, 10 dozen 14-ounce bottles and 8 dozen 7-ounce bottles, adulterated and mislabeled, Los Angeles; tomato catsup, 23 6-ounce bottles and 3 9-ounce bottles, Los Angeles; tomato paste, 25 pounds, filthy, San Francisco; tomato paste, 123 4½-ounce cans, adulterated and mislabeled, Los Angeles; tomato paste, 7,000 cans and 925 gallons, decomposed, San Francisco; tomato pulp, 55 gallons, adulterated and mislabeled, Los Angeles; tomato puree, 1,144 No. 10 tins, decomposed, Oakland; tomato puree, 1,704 gallons, fermented, San Francisco; vinegar, 300 gallons, below standard, Sacramento.

CONVICTIONS UNDER FOODS AND DRUGS ACTS, REPORTED DURING MAY, 1918.

During the month of May, fifty convictions were obtained for the adulteration and mislabeling of goods, a total of $560 being imposed. Following is a list of the violators:

Alameda: Mrs. L. Pereira, eggs, guilty, own recognizance, six months.

Crockett: J. Civiletti, camphorated oil, fined $5.

Daly City: Edmund Knoll, beef, fined $100.

Emeryville: Hood Canning Company, tomato sauce, fined $5.

Hayward: Plato Dimitracopulos, cream, guilty, sentence suspended; Harry Brown, Vermouth, guilty, sentence suspended; Harry Brown, Fernet Branca, fined $5; Villa Hotel, N. Lund, proprietor, Holland gin, fined $5.

Long Beach: Paul Geisler, Egg Vito, ten days in jail; suspended.

Los Angeles: Marston & Martin, Inc., fruit juice, fined $10; Eggosine, Boddington-Howie Company, fined $25.

Oakland: F. C. Koerber, vinegar, fined $5; Gus Andrews, Worcestershire sauce, fined $5; C. H. Sindlar, eggs, fined $10; C. H. Sindlar, pumpkin pie, fined $10; A. J. Hanford, cider vinegar, fined $5; Berquest Bros., compressed ham, fined $5; Chanquet Bros., whiskey, fined $5; Pacific Coast Canning Company, Inc., tomato puree, fined $20.*

Sacramento: M. J. Starrakis, meat sauce, fined $5.

Salinas: Sisti Segretti, fined $5; Buchta & Farrell, Gordon gin, fined $5.

San Francisco: Italian-American Canning Company, tomato puree, fined $10, tomato sauce, fined $10, tomato paste, fined $40†; Rivieria House Bar, Cordano & Gnecco, proprietors, Ferro-China bitters, fined $10, Fernet-Branca, fined $10, whiskey, fined $10; Geo. F. Daveggio, whiskey, fined $5; Milwaukee Bar, Brinkmann & Stegeman, proprietors, whiskey, fined $10; Genoa Grocery, Raffo, Peluffo & Canevari, proprietors, tomato paste, fined $5, maple drips, fined $5; Fontana & Stanghellini, tomato paste, fined $50; J. Spinosa, tomato paste, fined $10; A. Christensen, whiskey, fined $10; Clyde Stanley Company, extract of ginger, fined $5; rock and rye, fined $5; William Lichterman, Eau de Quinine, fined $10; O. A. Nelson, tomato catsup, fined $100; M. L. Nathan, Youth Restorer, fined $5, whiskey, fined $5; P. J. Reilly, whiskey, fined $5; August Pomieczynski, whiskey, guilty, own recognizance, six months; B. Winther, egg noodles, fined $5; Thomas Kristovich, tomato catsup, fined $5.

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*Convicted on two counts. †Convicted on four counts.

CASES REFERRED TO DISTRICT ATTORNEYS.

The following cases were referred by the State Board of Health, at the May meeting, to the district attorneys for prosecution. These cases included rotten eggs sold as fresh, filthy and decomposed apples which were used in pies, cheese which was filthy and decomposed, cordial labeled with exaggerated statements regarding curative properties, egg substitutes consisting of imitation products colored with coal tar dyes to imitate eggs, canned fish consisting of filthy, decomposed material, tincture of iodine below the U. S. P. standard, meat to be used in frankfurter sausages consisting of filthy, putrid material, milk adulterated with water, noodles labeled as "egg noodles" and colored with coal tar color, pies consisting of filthy and decomposed material made with rotten eggs, spices containing cereals and sand, canned spinach consisting of filthy and decomposed vegetable material, tomato products made from moldy and decomposed material, and inferior liquors sold from bottles bearing the original labels of high grade material.

Alameda—Panama Restaurant, Mrs. L. Pereira, proprietress, eggs. *Los Angeles*—Sam Seelig Company, Inc., Store No. 18, cheese; Hongkong Noodle Factory, eggs; Egg-O-Same Manufacturing Company, Egg-O-Same; Battelle Drug Company, tincture of iodine; Dodson Company, sauerkraut and tomato catsup; Samson Carliss, tomato catsup; Plaza Meat and Provision Company, tomato conserva. *Milpitas*—Pashoe Bros., whiskey. *Moneta*—V. Taormina, tomato paste. *Oakland*—C. H. Sindlar, apples for pies, eggs, pumpkin pie, lemon filler for pies; Muller Bros., meat used in frankfurters; Isabella Bakery, A. Schneider, proprietor, lemon cream cocoanut pie; F. C. Koerber, vinegar; George Andrews, sauce. *Pacific Grove*—B. F. Catlett, sweet spirits of nitre. *San Diego*—E. W. Newman, chocolate; Moosios Grocery No. 1, kippered herrings. *San Francisco*—Boldemann Chocolate Company, sweetened chocolate; C. R. Splivalo & Co., Dr. Price egg noodles; Smith, Robertson & Co., white pepper and black pepper; California Canneries Company, tomatoes; George F. Daveggio, whiskey; Reed Pickle Works, Mrs. Reed's spinach; Milwaukee Bar, whiskey. *San Jose*—S. E. Portal, rock and rye cordial. *San Pedro*—Southern California Fish Company, canned sardines. *Venice*—Venice Grocery Company, C. Menotti, proprietor, milk; Venice Drug Company, R. A. Phillips, proprietor, tincture of iodine.

FOOD INSPECTION DECISION 175.

COLORS IN FOOD.

(Amendment to Food Inspection Decision 76, 117, 129 and 164.)

Food Inspection Decision 164 is hereby amended by adding to the list of permitted dyes contained therein, under "*Yellow Shades*," the words:

11. Sudan I.
16. Butter yellow.
Yellow A. B. (Benzeneazo-β-naphthylamine).
Yellow O. B. (Ortho-Tolueneazo-β-naphthylamine).

Food Inspection Decisions 76, 117, and 129 are also amended so that, hereafter, the coal-tar dyes which may be used in food, subject to the provisions of Food Inspection Decisions 76, 117, and 129, shall be the following:

***Red shades*:**

107. Amaranth.
56. Ponceau 3 R.
517. Erythrosine.

***Orange shade*:**

85. Orange I.

***Yellow shades*:**

4. Naphthol yellow S.
94. Tartrazine.
11. Sudan I.
16. Butter yellow.
Yellow A. B. (Benzeneazo-β-naphthylamine).
Yellow O. B. (Ortho-Tolueneazo-β-naphthylamine).

***Green shade*:**

435. Light green S. F. yellowish.

***Blue shade*:**

692. Indigo disulfoacid.

The numbers preceding the names refer to the numbers of the colors as listed in A. G. Green's edition of the Schultz-Julius Systematic Survey of the Organic Coloring Matters, published in 1904.

REPORT OF THE BUREAU OF REGISTRATION OF NURSES FOR MAY, 1918.

ANNA C. JAMMÉ, R.N., Director.

By permission of the board the Director attended the meeting of the American Nurses' Association held in Cleveland, May 7 to 11. The program of this meeting was devoted entirely to war conditions in which nurses and nursing are involved. The readjustment of nursing work in order to meet the great demand for nurses and to accelerate the training of nurses as far as is compatible with good instruction was the main topic of discussion.

The rearrangement of the curriculum in schools of nursing to permit of credit for instruction taken outside the hospital and also to permit of military duty in the army hospitals during the third year of training should this become necessary, the establishment of military training schools for nurses, and the training of attendants for home nursing under a shorter term than that required for the registered nurse, was brought under very active discussion at the Cleveland meeting.

In this state we have endeavored to readjust ourselves to these needed changes and to speed up, as it were, the production of nurses, but at the same time we have not lost sight of the fact that now, more than ever, must we prepare competent nurses fully qualified to take up the important duties that are confronting us now and undoubtedly will to a greater degree after the war is over.

The University of California is giving during this summer a twelve-weeks course, covering the scientific preparatory subjects for admission to schools of nursing. This course is open to women who are college graduates and for which they will receive credit for one year in an accredited school of nursing, thereby reducing the professional course in the hospital to two years.

At the Santa Barbara Normal School arrangements have been made for a summer course of twelve weeks, covering the scientific preparatory subjects and open to normal school and high school graduates, for which credit of six months on the professional course in an accredited school of nursing may be obtained.

The Oakland Technical High School and the Polytechnic High School in Los Angeles are also contemplating having these courses during this summer for girls who may, or may not, be high school graduates, but who will be admitted to schools of nursing without credit. This preparatory work will greatly reduce the amount of work to be accomplished in the early part of the course in the school of nursing, and should these students enter the military hospitals in their third year they will have accomplished the major part of the professional training in the civil hospital. We will thus be able to strengthen the course of instruction at the beginning and to get nurses more rapidly for government service. This plan also offers better opportunity to young women to arrange their courses before entering the training school, while yet in the high school, and thus be doing a very valuable war service.

Appointment of Assistant Inspector of Training Schools.

The State Board of Health, at its regular meeting held June 1, appointed Miss Kate Sherill Douglass, R.N., Assistant Inspector of Schools of Nursing for the southern part of the state. Miss Douglass is a graduate of the Farrand School of Nursing in connection with Harper Hospital, Detroit, and holds the R.N. of Michigan. Miss Douglass has had extensive experience in schools of nursing and in the direction of nurses' training. She comes to us with a broad knowledge of nursing and with a fine conception of its ideals. She will undoubtedly be of valuable assistance in directing the schools in southern California and in promoting the standards of nursing education in this state. Her headquarters will be in Los Angeles, in the offices of the State Board of Health in the Union League Building, where she will be on duty about August 1.

Prenursing Course at Mills College.

The State Board of Health has approved the combined collegiate and professional courses in Mills College, leading to the degree of bachelor of science and graduate nurse, the two years of professional training to be taken either in the University of California Hospital or in the Leland Stanford University Hospital.

This now gives three institutions in the state offering the combined courses covering a period of five years, leading to the degree and graduate in nursing, *i.e.*, the University of California, Leland Stanford University and Mills College.

Waiver in Requirements for Red Cross Nurses.

A temporary waiver of registration as a requirement for enrollment of Red Cross nurses has been declared by the American Red Cross Nursing Service and provides that nurses graduated from accredited schools previous to January 1, 1918, may become enrolled without registration.

This is not to be considered in any way alarming or that registration is in danger. It is but a temporary arrangement to meet the great need for nurses and to enable all those who are eligible for service in any form to show their patriotism at this moment. Many nurses failed to register at the time of the waivers in the state laws, others have taken examinations and failed, amongst them many splendid nurses, while others who have graduated some time ago fear the ordeal of an examination; therefore, this opportunity gives everyone a chance to become an enrolled Red Cross nurse, who graduated before 1918. All nurses graduating after this date are still required to be registered in order to become enrolled.

Nurses all over the world have virtually fought and bled for their legal status and all that is involved in the registration of nurses—the direction of nursing education, the supervision of schools of nursing and the upbuilding and standardization of nursing as a profession. The R.N. is too precious a possession to be lost, and even if there must be a waiver for those who do not have it, every spirited nurse would want to go into her patriotic duty fully armed with the prestige it gives.

Another Way by Which California R.N. Nurses Are Helping to Win the War.

Notice has been received from the State Board of Control that the surplus funds of the bureau were invested in the third Liberty Loan in the amount of $20,000. Registered nurses in California have "gone over the top" in some ways ahead of other states. Possibly in Liberty Bonds they have also "gone over the top." We have no data on this from other states.

In the amendment of the law at the last legislature, provision was made for the investment of surplus funds at a higher rate of interest that can be obtained ordinarily. The amendment read as follows: "* * * provided, that whenever and as often as there is in the state treasury to the credit of the fund for the examination and registration of nurses funds in excess of $10,000 the same may be invested by the State Board of Control in the same manner that the funds of the state school land fund are invested, and the interest upon such investment, when collected, shall be placed to the credit of the fund for the examination and registration of nurses."

LIST OF COUNTY AND CITY HEALTH OFFICERS.

Alameda County—
Dr J. Hal Cope — Pleasanton
Alameda — Dr. A. Hieronymus
Albany — Dr. J. F. Diddle
Berkeley — Dr. J. J. Benton
Emeryvile — Dr. A. T. Drennan
Hayward — Dr. F. W. Browning
Livermore — Dr. J. K. Warner
Oakland — Dr. Kirby B. Smith
Piedmont — Dr. Benj. T. Mouser
Pleasanton — Dr. J. Hal Cope
San Leandro — Dr. Luther Michael
Alpine County—
Mr. Fred S. Dunlap — Markleeville
Amador County—
Dr. G. L. Lynch — Amador City
Jackson — H. E. Kay
Plymouth — W. J. Ninnis
Sutter Creek — T. W. Trudgen
Butte County—
Dr. L. L. Thompson — Gridley
Biggs — R. W. Simmons
Chico — W. H. Marshall
Gridley — Dr. L. Q. Thompson
Oroville — Dr. W. F. Gates
Calaveras County—
Dr. George F. Pache, Angels Camp
Angels Camp — Dr. E. W. Weirich
Colusa County—
Dr. G. W. Desrosier — Colusa
Colusa — Dr. G. W. Desrosier
Contra Costa County—
Dr. Chas. R. Blake — Richmond
Antioch — Dr. W. S. George
Concord — Dr. F. F. Neff
El Cerrito — Dr. J. F. Diddle
Hercules — Dr. C. T. Wetmore
Martinez — Dr. Edwin Merrithew
Pinole — Dr. M. L. Fernandez
Pittsburg — Dr. H. E. Peters
Richmond — Dr. Chas. R. Blake
Walnut Creek — Dr. C. R. Leech
Del Norte County—
Dr. E. M. Fine — Crescent City
Crescent City — Dr. E. M. Fine
El Dorado County—
Dr. S. H. Rantz — Placerville
Placerville — G. H. Wickes
Fresno County—
Dr. G. L. Long — Fresno
Clovis — Dr. M. S. McMurtry
Coalinga — Dr. C. W. Hutchison
Firebaugh — R. P. Snyder
Fowler — Chas. Chapman
Fresno — Dr. C. Mathewson
Kingsburg — Dr. J. A. Gillespie
Reedley — Dr. Chas. H. Traber
Sanger — Dr. Thos. F. Madden
Selma — Dr. Fred H. Williams
Glenn County—
Dr. Etta S. Lund — Willows
Orland — Dr. S. Iglick
Willows — Dr. W. H. Walker
Humboldt County—
Dr. Joseph Walsh — Eureka
Arcata — Dr. G. W. McKinnon
Blue Lake — Dr. Earl W. Hill
Eureka — Dr. L. A. Wing
Ferndale — Dr. A. P. Griffin
Fortuna — Dr. Orville Rockwell
Imperial County—
Dr. R. K. McGuffin — Imperial
Brawley — Dr. Eugene Le Baron
Calexico — Dr. P. N. Sims
El Centro — Dr. F. A. Burger
Holtville — C. A. Johnston
Imperial — Dr. R. K. McGuffin

Inyo County—
Dr. I. J. Woodin — Independence
Bishop — John B. Clarke
Kern County—
Dr. C. A. Morris — Bakersfield
Bakersfield — Dr. P. J. Cuneo
Delano — Dr. J. R. Hicks
Maricopa — Dr. H. N. Taylor
McKittrick — Dr. Robert C. Dear
Taft — Dr. M. W. Pascoe
Tehachapi — Dr. T. F. O'Reilly
Kings County—
Dr. C. L. Scott — Hanford
Corcoran — Dr. J. T. Peery
Hanford — Dr. A. S. Torrens
Lemoore — Dr. W. P. Byron
Lake County—
Dr. A. N. Craig — Kelseyville
Lakeport — P. H. Millberry
Lassen County—
Dr. W. E. Dozier — Susanville
Susanville — Dr. F. D. Walsh
Los Angeles County—
Dr. J. L. Pomeroy — Los Angeles
Alhambra — Dr. F. E. Corey
Arcadia — Dr. Chas D. Gaylord
Avalon — Dr. J. J. Peckham
Azusa — Dr. John E. Hill
Beverly Hills — Dr. Oscar H. Mueller
Burbank — Dr. E. H. Thompson
Claremont — Dr. A. V. Stoughton
Compton — E. E. Elliott
Covina — Dr. J. A. Lepley
Culver City —
Eagle Rock — Dr. C. H. Phinney
El Monte — Dr. S. L. Corpe
El Segundo — R. F. Davis
Glendale — Dr. R. E. Chase
Glendora — Dr. J. L. Pomeroy
Hermosa Beach — B. F. Brown
Huntington Park — Dr. W. Thompson
Inglewood — Dr. W. W. Reber
La Verne — Dr. J. E. Hubble
Long Beach — Dr. R. L. Taylor
Los Angeles — Dr. L. M. Powers
Manhattan Beach — Llewellyn Price
Monrovia — Dr. Chas. D. Gaylord
Monterey Park — Dr. J. S. Trewhella
Pasadena — Dr. Stanley P. Black
Pomona — Dr. N. J. Rice
Redondo Beach — Dr. D. R. Hancock
San Fernando — Dr. Benj. B. Ward
San Gabriel — Dr. Wm. W. Worster
San Marino — Dr. W. LeMoyne Wills
Santa Monica — Dr. F. J. Wagner
Sawtelle — Dr. A. B. Hromadka
Sierra Madre — Dr. R. H. Mackerras
South Pasadena — Dr. C. F. Metcalf
Venice — Dr. W. M. Kendall
Vernon — Dr. L. J. Williams
Watts — Dr. E. J. Riche
Whittier — Dr. W. H. Stokes
Madera County—
Dr. L. St. John Hely — Madera
Madera — Dr. L. St. John Hely
Marin County—
Dr. J. H. Kuser — Novato
Belvedere — Dr. Florence Scott
Corte Madera — M. M. McNamara
Larkspur — Dr. L. Newman
Mill Valley — James V. Chase
Ross — Dr. Thos. U. Smith
San Anselmo — Dr. O. W. Jones
San Rafael — Dr. W. F. Jones
Sausalito — Dr. Allen H. Vance
Mariposa County—
Dr. F. L. Wright — Mariposa

Mendocino County—
Dr. S. L. Rea ---------- Ukiah
Fort Bragg ---------- Dr. L. C. Gregory
Point Arena ---------- Conrad Nicks
Potter Valley ---------- W. T. Eddie
Ukiah ---------- Dr. Lew K. Van Allen
Willits ---------- Dr. F. C. Gunn
Merced County—
Dr. J. L. Mudd ---------- Merced
Gustine ---------- Dr. C. E. Stagner
Los Banos ---------- Dr. R. Jadarola
Merced ---------- Dr. H. Kylberg
Modoc County—
Dr. John Stile ---------- Alturas
Alturas ---------- Dr. John Stile
Mono County—
Dr. C. W. Wood ---------- Bridgeport
Monterey County—
Dr. J. A. Beck ---------- Salinas
Carmel-by-the-Sea ---------- J. F. Beardsley
King City ---------- Dr. D. Brumwell
Monterey ---------- C. A. Kiernan
Pacific Grove ---------- James P. Evans
Salinas ---------- W. E. Hallock
Napa County—
Dr. O. T. Schulze ---------- Napa
Calistoga ---------- Harry Von Arx
Napa ---------- Alex. Hull
St. Helena ---------- Wynn M. Powers
Nevada County—
Dr. Carl P. Jones ---------- Grass Valley
Grass Valley ---------- Dr. J. E. Yates
Nevada City ---------- Geo. H. Calanan
Orange County—
Dr. A. H. Domann ---------- Santa Ana
Anaheim ---------- Dr. J. W. Truxaw
Brea ---------- Dr. W. W. Davis
Fullerton ---------- Dr. J. H. Lang
Huntington Beach ---------- Dr. G. A. Shank
Newport Beach ---------- J. A. Porter
Orange ---------- Dr. F. L. Chapline
Santa Ana ---------- Dr. J. I. Clark
Seal Beach ---------- Dr. J. Park Dougall
Stanton ---------- J. H. Swan
Placer County—
Dr. John Manson ---------- Lincoln
Auburn ---------- Dr. A. N. Couture
Colfax ---------- Dr. H. N. Miner
Lincoln ---------- F. R. Elder
Rocklin ---------- John H. Gregory
Roseville ---------- G. W. Lohse
Plumas County—
Dr. B. J. Lasswell ---------- Quincy
Riverside County—
Dr. James G. Baird ---------- Riverside
Banning ---------- Dr. L. M. Ryan
Beaumont ---------- Dr. F. D. West
Blythe ---------- Dr. W. H. Chapman
Corona ---------- Dr. W. S. Davis
Elsinore ---------- Dr. G. E. Shank
Hemet ---------- Dr. H. O. Miller
Perris ---------- Dr. J. W. Reese
Riverside ---------- Dr. W. B. Wells
San Jacinto ---------- Charles Y. Adams
Sacramento County—
Dr. J. H. Leimbach ---------- Isleton
Sacramento ---------- Dr. W. J. Hanna
San Benito County—
Dr. J. M. O'Donnell ---------- Hollister
Hollister ---------- Dr. J. M. O'Donnell
San Juan ---------- Joseph De Lucchi
San Bernardino County—
Dr. Edgar Brigham -- S. Bernardino
Chino ---------- Dr. Elgar Reed
Colton ---------- Dr. J. A. Champion
Needles ---------- Dr. A. S. Parker
Ontario ---------- Dr. Calvert L. Emmons
Redlands ---------- Dr. Wm. A. Taltavall
Rialto ---------- Dr. L. P. Barbour
San Bernardino ---------- Dr. F. M. Gardner
Upland ---------- E. R. Bowman

San Diego County—
Dr. A. M. Lesem ---------- San Diego
Chula Vista ---------- Dr. G. E. Fuller
Coronado ---------- Dr. Raffael Lorini
East San Diego ---------- Dr. C. R. Carpenter
El Cajon ---------- Dr. Chas. R. Knox
Escondido ---------- Dr. B. L. Crise
La Mesa ---------- Dr. L. W. Zochert
National City ---------- Dr. Theo. F. Johnson
Oceanside ---------- Dr. R. S. Reid
San Diego ---------- Dr. E. P, Chartres-Martin
San Francisco (city and county)—
Dr. W. C. Hassler ---------- San Francisco
San Joaquin County—
Dr. John T. Davison ---------- Stockton
Lodi ---------- Dr. S. W. Hopkins
Stockton ---------- Dr, Linwood Dozier
Tracy ---------- Dr. J. G. Murrell
San Luis Obispo County—
Dr. C. J. McGovern ---------- San Luis Obispo
Arroyo Grande ---------- Dr. H. A. Gallup
Paso Robles ---------- W. W. Hughes
San Luis Obispo ---------- W. F. Cook
San Mateo County—
Dr. F. Holmes Smith ---------- San Bruno
Burlingame ---------- Dr. Jane H. Parkhurst
Daly City ---------- Dr. A. H. Rankin
Hillsborough ---------- C. M. Hirschey
Redwood City ---------- Dr. J. L. Ross
San Bruno ---------- Dr. F. Holmes Smith
San Mateo ---------- W. C. McLean
So. San Francisco ---------- Dr. J. C. McGovern
Santa Barbara County—
Dr. G. S. Lovern ---------- Santa Barbara
Lompoc ---------- Dr. C. B. Constable
Santa Barbara ---------- Dr. C. S. Stevens
Santa Maria ---------- Dr. O. P. Paulding
Santa Cruz County—
Dr. Wm. H. Keck ---------- Santa Cruz
Santa Cruz ---------- Dr. A. N. Nittler
Watsonville ---------- Dr. F. H. Koepke
Santa Clara County—
Dr. Wm. Simpson ---------- San Jose
Alviso ---------- Dr. J. I. Beattie
Gilroy ---------- Dr. J. W. Thayer
Los Gatos ---------- Dr. R. S. Anthony
Mayfield ---------- Joseph Ponce
Morgan Hill ---------- Dr. W. D. Miner
Mountain View -- Dr. A. H. MacFarlane
Palo Alto ---------- Louis Olson
San Jose ---------- Dr. D. A. Beattie
Santa Clara ---------- Dr. G. W. Fowler
Sunnyvale ---------- Mrs. Norman Schofield
Shasta County—
Dr. S. T. White ---------- Redding
Kennett ---------- Dr. J. P. Sandholt
Redding ---------- E. A. Rolison
Sierra County—
Dr. O. A. Eckhardt ---------- Downieville
Loyalton ---------- B. M. Wheeler
Siskiyou County—
Dr. W. F. Shaw ---------- Yreka
Dorris ---------- Otha A. Wilkins
Dunsmuir ---------- Herman Woodward
Etna ---------- Dr. W. H. Haines
Fort Jones ---------- T. J. Wayne
Montague ---------- Hugh W. French
Sisson ---------- Dr. Paul Wright
Yreka ---------- Dr W. F. Shaw
Solano County—
Dr. W. C. Jenney ---------- Vacaville
Benicia ---------- Dr. P. B. Fry
Dixon ---------- H. G. Grove
Fairfield ---------- F. L. Morrill
Rio Vista ----------
Suisun ---------- Dr. A. G. Bailey
Vacaville ---------- W. F. Hughes
Vallejo ---------- Dr. E. A. Peterson

LIST OF COUNTY AND CITY HEALTH OFFICERS—Continued.

Sonoma County—
Dr. F. O. Pryor ---------- Santa Rosa
Cloverdale ---------- E. E. Gibbons
Healdsburg ---------- Dr. J. W. Seawell
Petaluma ---------- Dr. R. B. Duncan
Santa Rosa ---------- Dr. Jackson Temple
Sebastopol ---------- Dr. W. J. Kerr
Sonoma ---------- J. H. Albertson
Stanislaus County—
Dr. J. L. Hennemuth ---------- Modesto
Modesto ---------- Dr. J. W. Ransome
Newman ---------- Dr. H. V. Armistead
Oakdale ---------- Dr. E. R. Clarke
Turlock ---------- Dr. W. L. Wilson
Sutter County—
Dr. W. L. Stephens ---------- Live Oak
Yuba City ---------- Dr. J. H. Barr
Tehama County—
Dr. E. E. Thompson ---------- Red Bluff
Corning ---------- Dr. O. F. Rudolph
Red Bluff ---------- Dr. Walter Gavey
Tehama ---------- Dr. Mary B. Poket
Trinity County—
Dr. F. H. Bly ---------- Weaverville
Tulare County—
Dr. A. W. Preston ---------- Visalia
Dinuba ---------- Dr. A. N. Loper
Exeter ---------- Dr. J. F. Dungan
Lindsay ---------- Dr. C. W. Locke
Porterville ---------- Dr. H. A. Todd
Tulare ---------- Dr. J. B. Rosson
Visalia ---------- Dr. A. W. Preston
Tuolumne County—
Dr. Wm. L. Hood ---------- Sonora
Sonora ---------- Dr. G. C. Wrigley
Ventura County—
Dr. A. A. Maulhardt ---------- Oxnard
Fillmore ---------- Dr. Will R. Manning
Oxnard ---------- Dr. G. A. Broughton
Ventura ---------- J. H. Hardey
Santa Paula ---------- Dr. G. C. Nichols
Yolo County—
Dr. W. J. Blevins ---------- Woodland
Davis ---------- Dr. W. E. Bates
Winters ---------- Dr. R. E. Peck
Woodland ---------- W. W. Brown
Yuba County—
Dr. J. H. Barr ---------- Marysville
Marysville ---------- Dr. A. L. Miller
Wheatland ---------- W. H. Niemeyer

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List of Diseases Reportable by Law

Anthrax
Beri-beri
Cerebrospinal Meningitis (Epidemic)
Chickenpox
Cholera, Asiatic
Dengue
Diphtheria
Dysentery
Erysipelas
German Measles
Glanders
*Gonococcus Infection
Hookworm
Leprosy
Malaria
Measles
Mumps
Ophthalmia Neonatorum
Paratyphoid Fever
Pellagra
Plague
Pneumonia (Lobar)
Poliomyelitis
Rabies
Rocky Mountain Spotted (or Tick) Fever
Scarlet Fever
Smallpox
*Syphilis
Tetanus
Trachoma
Tuberculosis
Typhoid Fever
Typhus Fever
Whooping-cough
Yellow Fever

*Reported by office number. Name and address not required.

Quarantinable Diseases

Cerebrospinal Meningitis (Epidemic)
Cholera, Asiatic
Diphtheria
Leprosy
Plague
Poliomyelitis
Scarlet Fever
Smallpox
Typhus Fever
Yellow Fever

Section 16, Public Health Act. All physicians, nurses, clergymen, attendants, owners, proprietors, managers, employees, and persons living in or visiting any sick person in any hotel, lodging house, house, building, office, structure, or other place where any person shall be ill of any infectious, contagious, or communicable disease, shall promptly report such fact to the county, city and county, city, or other local health board or health officer, together with the name of the person, if known, and place where such person is confined, and nature of the disease, if known.

WAR SUBSTITUTES.

Economy for Waste.
Cooperation for Criticism.
Knowledge of Prices for Gossip about Profits.
Cornmeal and Oatmeal for Wheat Flour.
Fish for Beef and Bacon.
Vegetable Oils for Animal Fats.
The Garden Hoe for the Golf Stick.
Performance for Argument.
Service for Sneers.
Patriotic Push for Peevish Puerilities.
Perishable for Preservable Foods.
Greater Production for a German Peace.
The Beef You Do Not Eat for the Rifle You Can Not Carry.
Conservation for Conversation.
Common Sense for Common Gossip.
Marketing for Telephoning.
Production for Pessimism.

Canadian Food Bureau.

PROF. WM. P. LUCAS,
MED. DEPT. CAL. UNIVERSITY,
SAN FRANCISCO, CAL.